eLEARNING IN DIVERSE SUBJECT-MATTER CONTEXTS

An Explorative Study

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Abstract

eLearning is an umbrella term for Technology-Enhanced Learning Environments (TELEs) that foster interactive, collaborative, collective, and communicative action in education. The overall mission of eLearning is to provide instructors and learners with the wide range of instructional opportunities to enhance the quality of teaching and learning in any educational context. eLearning reflects diverse applications of technologies embedded into different educational contexts; and it is often misunderstood. Furthermore, the dynamic development of emerging technologies introduces new potentials for more creative instructional design patterns in terms of TELEs that foster active learning with high levels of involvement; thus instructors become no more tied to the educational technology offerings of institutions/organizations.

An epistemological analysis is necessary for an extensive understanding about sciences and their subject-matter contextual differences; to be able to compare and contrast their eLearning practices in a more accurate and discursive way. Therefore, this dissertation acts as an explorative study which draws a framework of "subject-matter context-based" eLearning practices of diverse scientific fields in order to find out whether their eLearning practices are, indeed, demonstrating differences likewise their philosophy, or not.

The results of this dissertation demonstrate that the eLearning awareness levels of instructors are not satisfactory to embrace the use of sophisticate eLearning practices independent from their subject-matter context; although, there is a clear-cut distinction between the eLearning practices of humanities/social sciences' and engineering sciences' subject-matter contexts. Eventually, more research studies investigating the eLearning practices/characteristics of diverse subject-matter contexts is required to identify potential gaps.

Zusammenfassung

eLearning ist ein Oberbegriff für Technology-Enhanced Learning Environments (TELEs) der interaktives, kollaboratives, kollektives und kommunikatives Handeln in Bildung fördert. Die Mission von eLearning ist es, Lehrenden und Lernenden eine grosse Anzahl von Unterrichtsmöglichkeiten zu offerieren, um die Qualität von Lehren und Lernen in jedem fachspezifischen/fachbezogenen Kontext zu verbessern. eLearning reflektiert vielfältige Einsatzmöglichkeiten von Technologien eingebettet in unterschiedlichen Bildungskontexten; und wird häufig missverstanden. Darüber hinaus, lanciert die dynamische Entwicklung der neuen Technologien neue Potenziale für kreative didaktische Szenerien in einem Zustand von TELEs , die aktives Lernen mit hoher Beteiligung fördern; so dass die Lehrer nicht mehr an die eLearning Angebote von Institutionen /Organisationen gebunden sind.

Eine Epistemologische Analyse ist notwendig für ein umfangreiches Verständnis, über die Wissenschaften und deren kontextuellen Unterschiede zu erstellen, um einen Vergleich ihrer eLearning Anwendungen in einer genaueren und diskursiven Weise durchführen zu können. Deshalb, ist diese Dissertation Akt einer explorativen Studie, die einen Rahmen um „fachbezogene kontextbasierte“ eLearning Anwendungen der verschiedenen wissenschaftlichen Bereiche zieht, um heraus zu finden ob eine der eLearning Anwendungen ebenfalls unterschiedliche Eigenschaften wie ihre Philosophie zeigt.

Die Ergebnisse dieser Arbeit zeigen, dass der Bekanntheitsgrad von eLearning Anwendungen bei den Lehrenden nicht ausreichend ist, um einen Einsatz von sophistischen eLearning Anwendungen zu umfassen, dies ist kontextunabhängig; obwohl, eine klare Unterscheidung zwischen den eLearning Anwendungen der Geistes-/ Sozialwissenschaften und Ingenieurwissenschaften festgestellt worden ist. Zum Schluss, mehr Forschung und Studien sind erforderlich, die die eLearning Anwendungen/Charakteristiken in verschiedenen fachspezifischen Kontexten erforschen, um potenzielle Lücken zu identifizieren.

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1. INTRODUCTION

1.1. Background of the study

eLearning is used as an umbrella term for Technology-Enhanced Learning Environments (TELEs) that foster interactive, collaborative, collective, and communicative action in education. The overall mission of eLearning is to provide instructors and learners with the wide range of instructional opportunities to enhance the quality of teaching and learning in any educational context.

Technological improvements and societal developments are positively correlated with one another and dynamic. Thus, innovative technologies cause a shift in societies at micro, meso, and macro levels. As technologies advance, the habits and behaviors of human beings changes in action. Therefore, individuals transform themselves to keep up with those improvements and the adaptation occurs in each division of the living system. Besides, eLearning has been practiced widely to fill the gap between the new generation of learners and outdated theories of teaching and learning with the introduction of TELEs into current educational settings.

The recent eLearning practices are in a form of information acquisition through open source and/or commercial Course Management Systems (CMSs) or Learning Management Systems (LMSs). CMSs and LMSs are “software applications and authoring systems (i.e. Moodle, Blackboard & Joomla) for the use of administration, documentation, tracking, and reporting of training programs, classroom and online events, eLearning programs, and training content (Ellis, 2009).” However, the overall implementation of eLearning is not limited to information acquisition through CMSs and LMSs.

eLearning is a broad term that reflects diverse applications of technologies embedded into different educational contexts; and it is often misunderstood. The dynamic developments of new technologies emphasized new potentials for more creative instructional designs in terms of TELEs that foster active learning with high levels of involvement. Thus, the new technologies alternated the direction of TELEs in which multi-way communication, interaction, and collaboration gained much more attraction. Instructors are no more tied to the educational technology offerings of institutions/organizations. Informal learning environments begin to act as a compelling supplement of formal learning. Learners are encouraged to self-manage their learning activities in a more flexible and mobile atmosphere. Consequently, each new

technological development is bringing new insights to the field of education that fosters social and active learning; free from any institutional restriction.

Wide varieties of research studies investigate the theoretical and practice-oriented facts of eLearning. In fact, most of the studies have a more technological stand-point. However, scholars working in the field of education and social sciences are pointing out the necessity to conduct more research studies about perspectives on didactic rather than technological ones; to be able to develop a standardized eLearning design or didactic. Therefore, scholars begun to conduct large number studies about the didactic of eLearning/TEL; and context-based instructional design theories and models are established.

The instructional design theories and models are being widely accepted in US countries to guide the systematic design of an instruction on TELEs that help to determine: learning aims; characteristics; teaching strategies; methods and media; production and implementation; evaluation (formative and summative) and feedback. Instructional design patterns rely on the learning theories such as behaviorism, cognitivism, and constructivism. Indeed, any learning theory is adaptable to any kind instructional design context depending on the instructional strategy. However, instructional design theories and models are highly influenced from behaviorism rather than cognitivism and constructivism; through its primary use in military settings in US. Therefore, European scholars' critics of instructional design theories and models about its appropriateness to modern higher educational context are bitter. Hence, great number of studies about instructional design theories and models are developed and even scholars reinvented new designs for the innovative educational technologies. Ergo, new learning theories are established such as "Connectivism".

There are a significant number of research studies investigating the pedagogical approaches of eLearning. However, those research studies are often investigated within the authors' area of expertise. Only a few studies are comparing and contrasting eLearning inter-contexts. Within the broader range of research on TELEs, White and Liccardi (2006) focused on eLearning elements in hybrid, blended, and web-enhanced courses; particularly, on the student viewpoint. Another project was conducted by "e-teaching" (http://www.e-teaching.org) where the eLearning implementations in different sciences are measured, evaluated, and published at their web appearance in forms of experience sheets, interviews, and quantitative data from the members and scholars who

are enrolled in e-teaching.org. Eventually, the latest study is conducted by Mayrberger (2008) where she investigated the impact of subject-matter cultures on eLearning 2.0.

The implementation of eLearning in various scientific fields let academic disciplines to establish their own instructional design approaches according to their context. Furthermore, considerations on instructional design, didactics, and pedagogy help instructors and learners from interdisciplinary fields to decide on the extent of TELEs integration within their contexts in order to achieve more effective and efficient learner performances.

Different disciplines have different contexts (cf. Smith et al. 2008). According to Kekäle (2000); tasks, goals, perspectives, and social values may vary considerably between different disciplines. Biglan (1973) established taxonomy of different academic disciplines and divided them into two dimensions as “hard and soft” and “pure and applied”. Afterwards, he reinvented “hard-pure”, “hard-applied”, “soft-pure” & “soft-applied” dimensions. Indeed, Becher has further developed the Biglan’s taxonomy (as cited in Kemp & Jones, 2007) and he established a four-fold taxonomy which demonstrates primary characteristics of diverse disciplines (see Table 1*)*.

Smith et al. (2008) investigated afore mentioned disciplinary differences with regards to online courses and combined the outcomes with the theory of “Transactional Distance” by Moore (1997) that is the psychological distance that learners perceive between themselves and the instructor. Moreover, Czernevic & Brown (2007) examined “disciplinary differences in the use of educational technology”. Their sample group was concerning students and the academic staff. They found out significant differences between academic disciplines.

Table 1

Knowledge and Disciplinary Groups Adapted from Becher (as cited in Kemp & Jones, 2007)

Disciplinary Groupings	**Nature of Knowledge**
„Hard Pure“ Pure Sciences (e.g. Physics)	Cumulative; Atomistic (crystalline/tree-like) concerned with universals, quantities, simpflication, resulting in discovery/explanation
„Soft Pure“ Humanities (e.g. History) and pure social sciences (e.g. Anthropology)	Reiterative; holistic (organic/river like); concerned with particulars, qualities, complication, resulting in understanding/interpretation
„Hard Applied“ Technologies (e.g. mechanical engineering)	Purposive, pragmatic, (know-how via hard knowledge); concerned with mastery of physical environment, resulting in products/techniques
„Soft Applied“ Applied social sciences (e.g. Education)	Functional; utilitarian (know-how via soft knowledge); concerned with enhancement of [semi] professional practice; resulting in protocols procedures

Additionally, Kemp & Jones (2007) explore about academic use of digital resources with a special focus on disciplinary differences and the issue of progression. They indicate that “there has been little research work to date that investigates the ways in which academic practice varies in relation to digital resources although there is a significant tradition of research concerned more broadly with disciplinary differences amongst academics.” As a result, the overall findings demonstrate that the digital resources use is highly dependent on the subject-matter/discipline area that is being taught. Indeed, they ascertain that the whole framework is complex and seems to be

affected by various influencing factors. They have suggested establishing a strategy toward the use of digital resources within diverse academic disciplines/contexts.

These research studies have integrated the Biglan's taxonomy of academic disciplines. However, Kemp & Jones (2007) find out that the "pure" and "applied" dimensions do not show any significant differences; nonetheless, "hard" and "soft" dimensions have considerable differences when the case is the use of digital resources. Additionally, the direction of these research studies about academic disciplinary differences is collected under chunks of instructional design theory such as: academic time allocation, preference to teach over research, or to research over to teach, instructional strategy & methodology, media use, communication preferences, assessment & evaluation, and intellectual skills & abilities.

An epistemological analysis is necessary for an extensive understanding about sciences and their subject-matter contextual differences; to be able to compare and contrast their eLearning practices in a more accurate and discursive way. Consequently, this dissertation will act as an explorative study which will draw a framework for "subject-matter context-based" eLearning practices of different sciences with regards to instructional design patterns: instructional strategy & methodology; media; and communication preferences, in order to find out whether their eLearning practices are, indeed, demonstrating differences likewise their philosophy, or not.

Two qualitative survey instruments are designed to gather information from eLearning experts and instructors from diverse subject-matter contexts. The interviews with eLearning experts represent a theory-oriented approach and the interviews with instructors represent a practice-oriented approach toward eLearning practices of diverse subject-matter contexts.

1.2. Research Questions

Accordingly, a main research question and several sub-questions are asked for guidance:

How do diverse subject-matter contexts practice eLearning in terms of technological, instructional, and organizational aspects in higher education?

- *How do diverse subject-matter contexts implement eLearning in their own culture with regards to the conceptual framework of eLearning instruction?*
- *What are the benefits and challenges of eLearning instruction for diverse subject-matter contexts?*
- *What are the attitudes of instructors from diverse subject-matter contexts toward eLearning?*
- *How would an eLearning environment look like which meets the requirements of diverse subject-matter contexts?*

2. LITERATURE REVIEW

2.1. Development of Learning with Educational Technologies

The history of TEL starts from 1960s and 1970s with the use of learning machines and computers in courses. The origins of eLearning as currently practiced in Business, Higher Education, and the Military stem from the insightful work of Suppes and Blitzer (as cited in Fletcher, 2002), they clearly situated the use of technology within a broader educational agenda (as cited in Nicholson, 2007).

Italian engineer Agostino Ramelli in 1588 was seen as the first developer of a learning machine when he invented “a revolving table” for the King of France. Through this revolving table the recourse was made possible in various literature sources without running back and forth. In 1866, Skinner reported the first patent on his learning machine. 700 additional patent applications for similar "exercise equipment" have been confirmed until 1936. Moreover, Skinner and Holland have had developed, linear learning programs according to the law of operant conditioning in 1938. Afterwards, Crowder invented the branched learning programs in which an error-dependent presentation of the teaching content was made possible in 1959 that enabled the learning process to be individualized. In 1971, the National Science Foundation started two major projects with the aim of the efficiency of computer-assisted instruction for teaching in the United States. One of them was the project “TICCIT (Time-shared, Interactive, Computer-Controlled Information Television)” and the second one was the “PLATO project (Programmed Logic for Automated Teaching Operations).” In conclusion, these studies have confirmed Computer-assisted instruction as an effective tool (as cted in Kidd, 2010).

In the early 1960s, Blitzer created PLATO at the University of Illinois which is a timeshared computer system; to address concerns about student literacy. “According to Blitzer, PLATO could be used to develop and deliver computer-based education, including literacy programs. It allowed educators and students to use high-resolution graphics terminals and an educational programming language, ‘TUTOR’, to create and interact with educational courseware and to communicate with other users by means of electronic notes–the forerunner of today’s conferencing systems (as cited in Kidd, 2010).” Woolley argued that “as well as PLATO’s advances in Computer Assisted Instruction, its communication features were equally innovative and were the foundations of today’s conference and messaging systems (as cited in Kidd, 2010).” Suppes added that “in the future it would be possible for all students to have access to the service of ‘a personal

tutor' in the same way that ancient royals were once served by individual tutors, but that this time the tutors would be in the form of a computer (as cited in Nicholson, 2007)."

Karl - Heinz Flechsig, had brougt up a reason for medial development process with the concept "Technologische Wendung in der Didaktik[1]." Teaching techniques and their actual fulfillment in traditional teaching systems are tied on physical presence of a human instructor. However, teaching techniques can also, remove the physical presence, objectified and transferred via medium. The assumption of "technology can replace the instructor and make learning more efficient" is still present. However, there were contrary perspectives from "emancipatory media pedagogy" in the middle of 1970s (as cited in Issing & Klimsa, 2009, p. 13).

In Germany, projects about teaching machines started in 1964, after the ideas of Skinner, Holland, and Crowder. "Geromat III" where three students have to give the correct answers to the subject matter to go forward and "Bakkalaureus" where sixty four people can learn at the same time were invented. In the early 1970s, there were a number of research and development projects for computer-assisted instruction. Indeed, the issue of computer-based teaching came into consideration in Germany which was forgotten for a meanwhile due to the problems with the traditional "German Didaktik". Hence, in the late 1980s it was taken up again. The focus of computer-assisted learning was shifted from school to vocational training (cf. Niegemann, Hessel, Hochschied-Mauel, Aslanski, Deimann, & Kreuzberger, 2004).

Since the late 1990s, eLearning has been experienced a strong recovery by the spread of the Internet. The Federal Ministry of Education and Research has launched their several initiatives such as the "Schools on the Net", "New Media in Education" and "Notebook University" (cf. Federal Ministry of Education and Research, 2002).

Technological improvements changed direction from "one-to-one" to "many-to-many" with the introduction of the web. New learning theories are established such as "constructivism" and "social constructivism" in 1990s.

One of the most obvious trends in all areas of educational, business and training applications has been the increased scale of adaptation of Constructivist paradigms, particularly social constructivism by Palincsar, distributed Constructivism by Resnick,

[1] „Technological Turn in Didactic"

and the uptake of constructivist pedagogies by Forman; Ridgway & Passey (as cited in Nicholson, 2007).

In the middle of 1990s, the development of internet and the service "World Wide Web (WWW)" encouraged new teaching and learning practices. E-mail service of the internet has linked up the scientific world. Communication and connectivity gained much more importance than previous practices. Tools that enhance communication, collaboration, and connectivity are being developed in the framework of Web 2.0 (O'Reilly, 2005). Furthermore, concepts such as web 3.0 "Semantic Web", "Mobile Learning", "Open Educational Resources (OER)", and "Massive Open Online Courses (MOOCs)" are further developed in conjunction with recent technologies in practice; and today, they are continuing to develop dynamically. Hence, "eLearning" as a concept has been established for defining educational technologies in practice (Issing & Klimsa, 2009, pp. 14). eLearning is a very broad concept and it is often described as the implementation of a wide range of TELEs for different kinds of educational purposes.

"It is important to note that there is no single evolutionary tree and no single agreed definition of eLearning; since the 1960s, eLearning has evolved in different ways in Business, Education, the Training sector, and the Military, and currently means quite different things in different sectors. In the context of the wider education community, the use of the term eLearning has historically had wider connotations that embrace a diverse range of practices, technologies, and theoretical positions. It is not only focused on online contexts, and includes the full range of computer-based learning platforms and delivery methods, genres, formats and media such as multimedia, educational programming, simulations, games and the use of new media on fixed and mobile platforms across all scientific areas. It is often characterized by active learner-centered pedagogies (Nicholson, 2007)."

eLearning is a dynamic process; thus the eLearning theories and models require revision as the field of educational technologies expand. Klimsa outlines that there is no standards for eLearning; nonethless, the development and achievement of these standards are inevitable for future applications and they would be really meaningful only in interdisciplinary discourse (Klimsa, 2009, pp.61).

eLearning is a technology-enhanced learning environment which is interactive, cooperative, collective, and collaborative that combines digital media (online & offline) for the aim of teaching and learning. It's delivered either synchronously and/or

asynchronously independent from geographic location. It supports student-centered learning. Indeed, self-organization, self-conception, communication, interaction, intrinsic and extrinsic motivation are its factual characteristics.

According to Wentling et al., “eLearning is the acquisition and use of knowledge distributed and facilitated primarily by electronic means. Both its asynchronous and synchronous features allow learners to access it without time or location barriers. In an eLearning environment, the learning process is more self-paced and self-motivated. This kind of experience is quite different from what learners might experience in traditional teaching and learning environments. Learners, on the one hand, have more control and flexibility in their learning, but on the other hand, they need to take more responsibility for their own learning (as cited in Shih, Feng, & Tsai, 2008).”

Eyitayu defined eLearning as “a suitable blend of knowledge and technology for progressing wide, dynamic learning and teaching development. Kartha added that online learning or eLearning ignores barriers such as time and distance and attempts to make this type of education as conducive to learning as a traditional classroom does (as cited in Halawi, Pires, & McCarthy, 2009).”

According to Issing & Klimsa, eLearning is considered as all forms of learning where digital media plays an important role in distribution and presentation of learning materials that support interpersonal communication in learning processes and link them all in one frame (Issing & Klimsa, 2009, pp. 14).

“The ‘e’ in eLearning refers to the ‘how’ the course is digitized so it can be stored in electronic form. The ‘learning’ in eLearning refers to the “what”: the course includes as content and ways to help people learn it; and the “why” refers to the purpose: to help individuals achieve educational goals (Clark & Mayer, 2003).”

According to Mark Nichols who is an eLearning specialist in Laidlaw College, in New Zealand, he contradicts with the common definitions of eLearning because he believe that interactivity or other facts are differently perceived and have different meanings and also, there is no room for pedagogy in these definitions of eLearning. As a result he made his own definition of eLearning as: “eLearning is pedagogy empowered by digital technology. (Nichols, 2008)” He added that “eLearning is a combination of the ‘e’ (electronic) and ‘learning’, but is always directed by pedagogy. Technology (understood as digital technology in particular in eLearning contexts) sometimes enables new

pedagogies, but even so, the pedagogy ought to be well defined first, and then give direction to the technology (Nichols, 2008)."

Nichols (2008) accentuate that "to create and run eLearning, effective pedagogy must be combined with reliable, easy-to-use technology. If there is little or no pedagogy, the tools will be ineffective. If the technology is unreliable or too complex to use, eLearning will be an exercise in frustration."

eLearning as a learning environment has numerous formats such as "Blended Learning", "Technology-Enhanced Learning (TEL)", and "Self-study"; depending on the instructional strategy. However, the widely practiced format of eLearning is TEL where instructors enrich the teaching and learning activities of their own curricula via the newest technologies and methods in practice. The instructional context is the main determinant of the desired eLearning format.

"The New Media Consortium's Horizon Project is a comprehensive research venture established in 2002 that identifies and describes emerging technologies likely to have a large impact over the coming five years on a variety of sectors around the globe. Horizon Reports examine emerging technologies for their potential impact on and use in teaching, learning, and creative inquiry. Each edition of the Horizon Report introduces six emerging technologies or practices that are likely to enter mainstream use within three to five years (Johnson, Smith, Willis, Levine, and Haywood, 2011)."

Technologies between 2004 – 2014 are developed in a linear fashion within the educational settings. For example, in 2004, learning objects, multimodal interfaces, and knowledge webs were claimed as emerging technologies within four to five years; it is obvious that those technologies that are mentioned in 2004 are already integrated into educational contexts and complex technologies are emerging rapidly in order to enhace the quality of education (see Table 2).

Table 2

Horizon Reports between 2004 and 2014 (cf. New Media Consortium)

THE HORIZON REPORT	Up to 1 year	2 to 3 years	4 to 5 years
2004	Learning objects Scalable vector graphics	Rapid prototyping Multimodal interfaces	Context-aware computing Knowledge webs
2005	Extended Learning Ubiquitous Wireless	Intelligent Searching Educational Gaming	Social Networks & Knowledge Webs Context Aware Computing/Augmented Reality
2006	Social Computing Personal Broadcasting	The phones in their Pockets Educational Gaming	Augmented Reality & Enhanced Visualization Context-aware environments and devices
2007	User Created Content Social networking	Mobile phones Virtual Worlds	The New Scholarship and Emerging Forms of Publication Massively Multiplayer Educational Gaming
2008	Grassroots video Collaboration webs	Mobile Broadband Data Mashups	Collective Intelligence Social operating systems
2009	Mobiles Cloud Computing	Geo-Everything The Personal Web	Semantic Aware Applications Smart objects
2010	Mobile Computing Open Content	Electronic Books Simple Augmented Reality	Gesture-based Computing Visual Data Analysis
2011	Electronic Books Mobiles	Augmented Reality Game-based Learning	Gesture-based Computing Learning Analytics
2012	Mobile Applications Tablet Computing	Game-based learning Learning Analytics	Gesture-based Computing Internet of Things
2013	MassiveOpen OnlineCourses Tablet Computing	Games and Gamification Learning Analytics	3D Printing Wearable Technology
2014	Flipped Classroom Learning Analytics	3D Printing Games and Gamification	Quantified Self Virtual Assistants

2.1.1. eLearning 2.0

The O'Reilly Media group introduced the phrase Web 2.0 in 2004 which refers to a newer, better version of the world wide web whereby the emphasis is on interactivity, co-creation and the active role of the website users (Wever, Mechant, Veevaete, & Hauttekeete, 2007). The previous version of world wide web or Web 1.0 was read-only version of web, where the users were only allowed to read information from channels of Web 1.0. The flow of information was one-way in which the active and collaborative participation of users is unimaginable.

Tim O'Reilly describes Web 2.0 as a platform (as cited in Wever et al., 2007): "delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple resources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an 'architecture of participation', and going beyond the page metaphor of Web 1.0 to deliver rich user experiences."

Social software has emerged as a major component of the Web 2.0 movement. The idea of using networked computing in order to connect individuals to be able to enhance their knowledge and their ability to learn dates as far back as the 1960s (Alexander, 2006). Recent internet technologies provide wide variety of applications that have social, collaborative, and connective features that are compounds of the so called "social software" such as blogs, wikis, podcasting, videoblogs, geotagging, augmented reality, and social networking (cf. Alexander, 2006).

The shift from Web 1.0 to Web 2.0 formed similar conceptualizations in the field of education. The clear-cut characteristics of Web 1.0 and 2.0 are visible in "eLearning 1.0" and "eLearning 2.0". While the access to any kind of information was the major function of eLearning 1.0, the concept of eLearning mutated with the evolution of Web 1.0 into 2.0. The social software enabled the interaction of user with the system and with each other; eventually, the eLearning 2.0 is introduced.

The term eLearning 2.0 is primarily mentioned by Stephen Downes in his article published in eLearn Magazine (Downes, 2005). Downes underline the importance of Communities of Practice (CoP) in eLearning 2.0. The conceptualization of CoPs is developed by Etienne Wenger where he defined CoPs as groups of people who share a common interest and a repository with regular interaction (cf. Wenger & William, 2000).

Downes ascertains that Learning Management Systems (LMSs) involve CoPs that are provider-driven in the framework of eLearning 1.0 to develop discussions and encourage social interaction. He underlines that only a few of them accomplished to be a CoP in the framework of online learning; however, not in terms of Wenger's conceptualization. Downes acknowledges that the integration of Web 2.0 applications in the field of education (the use of weblogs that raised Web 2.0 awareness of instructors) and the matriculation of generation Z or namely the digital natives (individuals born to digital era) to educational institutions have created the shift from eLearning 1.0 to eLearning 2.0 whereby online learning molt from being a medium to being a social learning platform and becomes more like a content-authoring platform rather than being a type of content-consumption tool (cf. Downes, 2005).

Active participation of users is a requisite of Web 2.0 technologies in which the continous development of user-generated content generates a shared repertoire for Web 2.0; rather than Web 1.0 technologies that were profoundly passive. Digital natives desire active learning experiences that are social, participatory, and supported by rich media (McLoughin & Lee, 2010) to ensure edutainment[2]. Social software tools provide active, process-based, and anchored learning experiences that have the potential to cultivate self-regulated and independent learning (McLoughin & Lee, 2010). The self-regulated/managed and independent learning atmosphere equipped by Web 2.0 technologies encourage learners to form their own personalized learning environments (PLEs). The adaptation of a raft of Web 2.0 tools that serves to integrate essential learning outcomes such as lifelong learning, informal learning, and self-directed learning led to the emergence of PLEs (McLoughin & Lee, 2010).

Kerres reveals that eLearning 1.0 is understood as the dissemination of content prepared by instructors for learners that is accessible over servers (learning platforms). However, Web 2.0 accomplished a new form of web-based learning with the help of social software. Therefore, internet become a pool of information (OpenContent) that continously develop itself in order to achieve high quality knowledge (Bernhardt & Kirchner, 2007).

[2] A word combination of education and entertainment

eLearning 2.0 is considerably attached to social software; however, learning theories and instructional design patterns constitute the great proportion of the concept. Moreover, interdisciplinary discourse is significantly recommended to enhance the quality in teaching and learning and to create an added-value for education with technologies while developing courses via Learning 2.0.

Learning through social interactions was originally underlined by Albert Bandura, in his theory of "social learning" where he argued that the human beings learn through social interactions with other human beings through their lives. Observational learning, imitation and behavior modeling, and attitudes and emotional reactions are major characteristics of social learning theory. Human beings are assumed to learn from observing the environment, identifying the determined circumstances, imitating an idol subject's/object's behavior within the community of practice. Nevertheless, the evaluation of attitudes and emotional reactions are limited in virtual environments; however, gesture-based computing and development of diverse semiotic expressions enable individuals to easily express emotional cues/extra-verbal cues (cf. Smith & Berge, 2009).

Ebner, Holzinger, & Mauerer (2007) claim that the lack of "social learning" in higher education is assumed to have an impact on the immediate diffusion of social software into diverse contexts of higher education (cf. Ebner et al., 2007). Berners-Lee underscored three major components that changed the use of internet: accessibility for all (being affordable for everyone), devices (emerging technologies as mobile and pervasive devices introduce active computing), and usability (the ease of use) (as cited in Ebner et al., 2007). The adaptation of social software/Web 2.0 being accelerated in conjunction with the augmentation of affordable innovative technologies, the emergence of potential use cases that enhance the quality of teaching and learning, and the development of user-friendly design patterns that are universal.

The adaptation of social software for learning is a multidimensional and dynamic phenomenon that is under constant evolution, where it is challenging to model all activities that emerge in a common framework. Nonetheless, Redecker, Ala-Mutka, Bacigalupo, Ferrari, & Punie (2009) underscore that some common and differentiating features become visible when the current state of the art is recognized. Learning, networking, embracing diversity, and opening up to society are accentuated as key impact areas of eLearning 2.0 by Redecer et al. (2009).

The scaffolds of pedagogical strategies intended to support, facilitate, enhance and improve learning processes and knowledge transformation are developed by social computing tools. The diversity of individual learning preferences (sensory channels) are supported by more personalized ways of retrieving, managing, and transforming information with a variety of adaptable tools that supply more engaging learning environments by integrating students into collaborative networks or learning communities that facilitate the joint production of content and offer peer support and assistance. Thenceforth, learning dimension of the key impact areas of eLearning 2.0 refers to the personalization of learning environments (cf. Redecer et al., 2009).

Motivation, improvement of learner participation, and cultivation of social and learning skills could be enhanced by eLearning 2.0. Moreover, higher order cognitive skills like reflection, meta-cognition, self-directed learning, and encouragement to develop and realize personal potential could be achieved with eLearning 2.0 (cf. Redecer et al., 2009).

Communication among learners or between learners and instructors could be enhanced through social computing in three dimensions: “to support the exchange of knowledge and material in different networks; facilitate community building, providing teachers and learners with social environments that offer assistance and (emotional) support; and provide platforms for collaboration, allowing teachers and learners to jointly develop (educational) content (Redecer et al., 2009).”

Social computing is enhanced through diversity of individuals in a community/network. Demographic characteristics of individuals across the globe, their level of expertise, backgrounds, and cultures embraces diversity in a community of practice that arouses wide variety of dimensions/perpectives about any subject-matter (cf. Redecer et al., 2009).

Social computing can “open” any institutional learning accessible and transparent for any individual or members of a community/society (cf. Redecer et al., 2009). Open Educational Resources (OER) and Massive Open Online Courses (MOOCs) are a few examples of “openness” in the framework of eLearning 2.0.

Green, Facer, Rudd, Dillon and Humphreys outlined four key areas crucial to enable personalized learning through social software/digital technologies; thus pedagogy must (as cited in McLoughin & Lee, 2010): ensure that learners are capable of making informed educational decisions; diversify and recognize different forms of skills and

knowledge; create diverse learning environments; and include learner-focused forms of feedback and assessment.

Siemens conceptualizes Personal Learning Environments (PLEs) as “a collection of tools, brought together under the conceptual notion of openness, interoperability and learner control (as cited in McLoughin & Lee). There is two different interpretation of PLEs in order to understand the term “personalization”. First encompasses a learner-centered but provider-driven approach to education; the second endorses a wholly learner-driven approach to education that surpasses any circumstances of classroom, institution, or organization (McLoughin & Lee, 2010). The first entails an instructor-led establishment of PLEs dependent on a determined context. However, the second approach allows total learner control over their own learning processes.

“Both PLE models challenge university and college teachers to harness the many resources that exist outside the formal spaces of the institution, to create opportunities for authentic learning that is personally meaningful and relevant to learners, and to capitalise on the interests and digital competencies that learners already possess (McLoughin & Lee, 2010).”

eLearning 2.0 supplies platforms for personalized learning environments that involve wide range of potential applications for social networking within a learning community for active engagement with content, experts, tutors, and peers (individuals that share a common interest). PLEs embrace learners to self-regulate their learning processes. Furthermore, constructivism, social constructivism, social learning, and connectivism are the dominant learning theories of eLearning 2.0 that should be intensively integrated into instructional design patterns of eLearning 2.0 in conjunction with interdisciplinary discourse.

Learning occurs when members of a learning community interact and engage with the content, participants, and the context to create a shared repository of knowledge. Collective intelligence demonstrates the effective knowledge construction of learning communities/loosely organized groups of people such as in the cases of Google, Wikipedia, and Threadless (cf. Malone, Laubacher, & Dellarocas, 2010). Moreover, collective intelligence reveals the synergy of knowledge contruction within CoPs. There is conscious or unconscious division of labor in knowledge communities such as Wikipedia and the final outcomes they produce (a wikipedia article) are developed, edited, reformed, elaborated, revised, and even peer-reviewed by thousands of other

individuals who are members of that specific networked community. In 1996 there were only 250,000 sites and 45 million users; only a few generated content for Web 1.0 (Read-Only-Web). Eventually, the emergence of Web 2.0 aroused the number of web sites by 80,000,000 and the number of global user were over one billion in 2006 whereby a plenty of individuals, groups, and CoPs actively generating content for Web 2.0 (Read-Write-Web) (cf. Bernhardt & Kirchner, 2007).

2.1.2. Lifelong Learning and Informal Learning

Life-long learning and informal learning are important leaning conceptualizations of second generation eLearning environments (cf. Bernhardt & Kirchner, 2007). The rapid proliferation of technologies adjusted the work conditions and requisite for dynamic, multi-dimesional, active, and collaborative individuals aroused who constantly update own knowledge level/status. Informal learning environments gained much more importance to embrace life-long learning where personal, organizational, and societal development are its major objectives. Therefore, social software such as Blogs, Wikis, Networking, and other application contexts provide informal learning situations on interoperable learning environments with high levels of learner control that offer ubiquitous access (cf. Bernhardt & Kirchner, 2007).

eLearning 2.0 is the moderator of other learning conceptualizations enhanced with Web 2.0 applications such as augmented reality, gesture-based computing, game-based learning, gamification, informal learning, micro learning, mobile learning, learning analytics, flipped classroom, and open learning are to name some.

2.1.3. Augmented Reality

Augmented Reality (AR) is an already invented technology in 1960s, but later enhanced by advertising, marketing, and educational sectors. AR is a combination of virtual context with the physical being. With the help of the tools such as web-cams, context-specific glasses, or mobile devices; an individual is able to blend two environments and be partly included in the virtual worlds. AR is an essential technology to realize difficult real-life conditions on educational contexts. For example, architects and engineers can observe the parts of a consturuction or a machine in detail with an opportunity to operate on it; or, learners of “Surgery” could practice their skills with the help of a specifically developed AR environment in order to reduce surgical failure rates; or, it can be used to enhance the social and intelectual skills. A constraint of AR

technologies is the development of an appropriate software for the effective illustration of the subject-matter (cf. Johnson et al., 2011).

2.1.4. Gesture-based Computing

Finger touching devices such as smartphones, Tablet PCs that react to pressure, motion, and the number/direction of fingers touching on the surface of such devices are the basic examples of gesture-based computing. Sophisticated applications are integrated into game consoles such as the “Xbox Kinect” and “Nintendo Wii”; to explore the potential of human movement in gaming. A stationary infrared sensor and a hand-held accelorometer-based controller enable the determination of position, accelaration, and direction of the user. However, the Kinect system eliminates the hand-held controller and executes commands and input by scanning the visual field. Thus, hand and body become input devices in Kinect systems that analysis the motor movements of an individual user, including body movement and facial expressions. Convergence of gesture-sensing technology with voice recognition is the second interesting development in the field of gesture-based computing such as virtual assisstants and “smart” televisions (cf. Johnson, Adams, & Cummins, 2012).

Gesture-based computing transforms the interaction of human beings with computers, both physically and mechanically. It has received a lot of attention in consumer space but a review of current use cases in higher education is limited. Nonetheless, disciplines such as “Art and Fashion Design” integrated gesture-based computing as a prototyping platforms; “Music” to compose multimedia productions based on user’s eye movement; and “Science and Medicine” for visualization of surgical operations (cf. Johnson et al., 2012). The full realization of the potential of gesture-based computing within higher education will require intensive disciplinary discourse about instructional design patterns (Johnson et al., 2012).

2.1.5. Game-based Learning and Gamification

A recent survey about age demographic of game players by “Entertainment Software Association” highlighted that 31% of surveyed game players are aged between 18 to 35 (Johnson, Adams, Cummins, Estrada, Freeman, & Ludgate, 2013). Educational gaming, game-based scenarios, and entertainment-based virtual worlds are mentioned almost in every report after HR 2005. ‘Gaming’ become a social phenomenon. Digital natives prefer to play online, digital, multiplayer, role-playing, collaborative games rather than playing games with friends on physical contexts. Education scientists point out the

importance of entertainment in educational contexts and therefore, game-based scenarios and edutainment gain attraction. However, educational scientists are having doubts about the pedagogical function of educational gaming.

Integration of game-based scenarios into educational contexts aroused the theory of gamification. MacMillan defined gamification as the integration of game mechanics, dynamics, and frameworks to realize desired behaviors; it is recently embedded into fields such as marketing, politics, health, and fitness (as cited in Lee & Hammer, 2011).

"The game mechanics can be of different types, such as: a) behavioral (focused on human behavior and the human psyche), b) feedback (related with the feedback loop in the game mechanic), and c) progression (used to structure and stretches the accumulation of meaningful skills). There are other game mechanics that can be used for gamification materials and educational activities, such as: *time* (the players have some limited time to perform a task), *exploration* (players have to explore and discover things that will surprise them), *challenges between/among users* (players can challenge each other and compete for the achievement of objectives, objects, medals, etc…) (González & Area, 2013)." Moreover, social interaction, competition and collaboration is vital, thus networking is an essential component of game mechanics and design patterns (cf. González & Area, 2013).

Engagement of participants with the definite circumstances of a determined context via gamification underlined to empower soft skills of individuals. Researchers and educators believe that games stimulate productivity and creative inquiry among learners. Indeed, gamification fosters development of new skills and abilities such as enhancement of strategical and ad-hoc decision-making, creative problem solving, and teamwork. Gamification is broadly integrated into businesses in order to design work incentive programs, mobile applications that engage employees through rewards, leader boards, and badges (cf. Johnson et al., 2013).

The rapid diffusion of digital devices and internet networks that embrace ubiquitous teaching and learning accelerated the application of game mechanics into educational contexts. Game-based learning has transformed into a new dimesion in 2013, whereby the major focus has shift to game culture and design. Game-like scenarios in higher education cultivate critical thinking and problem solving in higher education to reinforce the real-world application of concepts (cf. Johnson et al., 2013).

"Gamification works to satisfy some of the most fundamental human desires: recognition and reward, status, achievement, competition & collaboration, self-

expression, and altruism (González & Area, 2013).” Rewards and badges are frequently mentioned components of gamification. They motivate participants to move forward and demonstrate their abilities and skills among the belonged community of practice. Although gamification is considerably a new concept, it has received frequent attention from companies, such as Google, Groupon, Photoshop, Pandora, FourSquare, Zipcar, and Steam. They used gamification features in their web sites to better engage loyal customers and to attract new customers (Li, Dong, Untch, & Chasteen, 2013). For instance, Foursquare which is a geotagging application programming interface uses badges in terms of rewarding for encouragement. In addition, beneficiaries for loyal customers are disseminated by some restaurants and cafes as a reward. Individuals loyalty are counted with their number of check-in to a certain place (cf. Johnson et al., 2013).

“Understanding the role of gamification in education, therefore, means understanding under what circumstances game elements can drive learning behavior (Lee & Hammer, 2011).” Tasks are transformed into challenges, rewarding of individuals for dedication and efficency has aroused, and a space for emerging leaders is offered by gamification which lends itself to myriad of applications in higher education (cf. Johnson et al., 2013). Digital contents and gamification material are able to provide learners with wide variety of formal teaching processes that provide entertaining and informal experiences (cf. González & Area, 2013). Although gamification is a newly emerged phenomenon in education, the number of its practice is greater.

IE Business School in Madrid integrated gamification theory into “Global Economic Policy” course with the game they have invented “10 Downing Street” whereby learners in teams attain the role of British Prime Minister and work with key figures of British government to develop new strategies which will effect the well-being of the national economy. Learners engage in debates and eventually, the developed strategies are put into practice after a general election. The aim of this course was to mimic pressing issues to foster learners higher-level thinking skills and provide them a platform to exercise skills relevant to their subject-matter context. Moreover, Mozilla Foundation launched “Open Badges Project” in september 2011 for the realization of informal learning experiences, specifically, those that can not be conveyed through a formal credit hours or

grade point average. The Mozilla Backpack web site[3] is introduced for the demonstration of open badges gained through several platforms such as massive open online courses (MOOCs). Purdue University integrated the system of Mozilla Foundation and personalized it according to its own organizational context (cf. Johnson et al., 2013).

2.1.6. Mobile Learning

The use of mobile devices in educational contexts emerged in the middle of 1990s (Parzl & Bannert, 2013). The emergence of mobile learning is facilitated by the appearance of various portable devices and the rapid uptake of mobile communications (Gourova, Asenova, & Dulev, 2013). Pachler et al. defined the integration of mobile devices in three different consecutive phases that focuses initially on mobile devices, then informal learning, and eventually, the learner (as cited in Parzl & Bannert, 2013). McFarlane, Triggs, and Yee accentuated that "as personal mobile technologies for learning become more wide-spread, studies are starting to show evidence of the value of incorporating mobile devices in teaching and learning (as cited in Sharples, Taylor, & Vavoula, 2010)."

There is no common definition of mobile learning or microlearning except its pragmatic conceptualization. Some scholars attempt to define and conceptualize microlearningearning in terms of devices and technologies; others in terms of the mobility of learners and the mobility of learning, and in terms of the learners' experience of learning with mobile devices. Nevertheless, authority and credibility of some conceptual base is considerably required for the mobile learning community. Evaluation methodologies unique for microlearningearning would be provided in such conceptual base. However, microlearningearning is personal, conceptual, situated, and informal learning environment, thus it is problematic to define and evaluate its practices (Traxler, 2007).

Mobile devices are supporting corporate training for mobile workers and are enhancing medical education, teacher training, music composition, nurse training, and numerous other disciplines (Traxler, 2007). The use of mobile devices augment considerably each year; thus the penetration of smartphones into households increased by 18% from 2012 (63%) to 2013 (81%) and tablet PCs by 17% from 2012 (19%) to 2013

[3] Mozilla Backpack http://backpack.openbadges.org/backpack/login

(36%) (cf. Feierabend, Karg, & Rathgeb, 2013a). In 2010, the use of smartphones by youths are measured by 14%; within the following three years it has reached to 72%. Moreover, the internet access via smartphones demonstrated a magnifying escalation from 2006 (5%) to 2013 (73%) and indeed, the internet access via Tablet-PCs increased to 12% by 2013 (cf. Feierabend, Karg, & Rathgeb, 2013b).

Mobile devices cover a wider spectrum including handheld digital devices that enable and encourage ubiquitous computing. “Mobile Learning is a learning process that is supported by portable devices (notebooks, handhelds, mobil phones), wireless networks, and universal as well as subject-specific applications (Döring & Kleeberg, 2006).” Since the begining of 1990s, mobile technologies are developed rapidly such as sensor- and display-technologies; indeed they are marked as the cornerstone of mobile and ubiquitous learning (Specht & Ebner, 2011). Johnson et al. underlined that in the last six years of Horizon Reports, mobile and ubiquitous technologies are found to be most relevant developments to support learning, teaching, research, and creativity (as cited in Specht & Ebner, 2011).

Mobile technologies not only consist of devices such as mobile phones, smartphones, laptops, ultrabooks, tablet-PCs; but also the functionalities of those devices offer, are included. These are Radio Frequency IDentification (RFID), Barcodes (QR Codes), Infrared, Bluetooth; or sensor components such as camera, microphone, GPS, compass, or other centrifugal devices that encourage contextual learning experiences (cf. Specht & Ebner, 2011). These functionalities enable personalized and context-specific teaching and learning experiences with the help of mobile applications provided by Google (Android) and Apple (iOS).

“The assortment of available apps is wide-ranging, from those that extend the camera or sensors on the device (“Siesmometer”, “Hipstamatic,” and “360”); to new forms of newspapers and magazines (“McSweeny’s”); to games that make use of gestures in clever ways (“Angry Birds”); to new forms of mapping tools (“StarWalk”); to apps that make restaurant recommendations based on the user’s location (“Urbanspoon”). What makes apps as a category interesting are two key factors: the first is that there are so many to choose from — one can find an app to support almost any interest or endeavor, and the possibilities expand every day. The second is that they are inexpensive (Johnson, Adams, & Cummins, 2012).”

The determinant focus on technical functions of mobile devices is not enough to realize any learning scenario. Therefore, the extent of mobile devices and their successful integration into formal and informal educational contexts should be questionned (cf. Traxler, 2007). Mobile learning is an interdisciplinary field (cf. Parzl & Bannert, 2013) allowing collaboration and cooperation of different disciplines and field of studies. Thus, the investigation and evaluation of microlearningearning is “noisy”; as indeed underlined by Traxler (2007). Nonetheless, recent research studies (cf. Döring & Kleeberg, 2006; Specht & Ebner, 2011; Gourova et al., 2013; Parzl & Bannert, 2013) embrace the “mobile didactics” and try to bring new insights to teaching and learning with mobile technologies in formal and informal learning environments.

The pedagogic, psychologic and philosophical aspects of microlearningearning have been underscored in studies of Sharples et al., Wali et al., Pachler et al., and Koole (as cited in Parzl & Bannert, 2013). These studies attempt to build a framework for analysing mobile learning. The common instructional variables of afore mentioned models are learner, context, device/media, social interactions, and cultural aspects.

The learner characteristics, their acts/habits as a media user, and their cognitive skills (memory, previous knowledge levels, emotions, motivations) are outlined under the “learner” variable. Learning context, social context (rules, community, division of labor), and cultural context are the most mentioned types of “context” that have an impact in analysis of microlearningearning. Moreover, the physical, technical, and functional (usability) paramaters of media artifacts are discussed under “device/media” variable. Eventually, “social interactions” and “cultural aspects” are examined either dependent to the context dimension or independently (cf. Parzl & Bannert, 2013).

Parz & Bannert (2013) evaluated the afore mentioned frameworks for analysing mobile learning and highlighted them in three major dimensions (enhancement of learning motivation, learning performance, and efficiency) developed by Kerres to indicate instructional expectations from a microlearningearning scenario. They concluded that research on microlearningearning didactics should have more emphasis on enhancement of learning efficiency and learning performance.

“Numerous frameworks have been proposed in the literature, ranging from complex multi-level models to smaller frameworks that often omit important socio-cultural characteristics of learning or of pedagogy. Common themes include portability of m-learning devices; mobility of learners; interactivity; control; and communication. These

descriptions acknowledge the prime importance of context, including spatial and temporal considerations, for analysing m-learning experiences (Kearney, Schuck, Burden, & Aubusson, 2012)."

Kearney et al. (2012) developed another pedagogical framework for microlearningearning with regards to time and space considerations including three distinctive features of microlearningearning: personalization, authenticity, and collaboration. The idea of customizable authentic mobile applications that enable autonomous learning with regards to individual and collaborative learning experiences are being encouraged in the model of Kearney et al. (2012).

Frohberg et al. reviewed more than 1400 publications and described six dimensions outlined from the analysis and classification of 102 mobile learning systems. These are context (where and when?), tools (with what?), control (how?), communication (with who?), subject (who?), and learning aim (what?) that is based on the framework of Sharples "A theory of learning for the mobile age" (as cited in Specht & Ebner, 2011).

De Jong et al. classified mobile-supported learning experiences according to dimesions based on type of information, use of context, major aim, flow of information, likewise learning theory paradigm (as cited in Specht & Ebner, 2011). More than 80 diverse systems are under investigated by authors regarding implemented contextual factors that are taken into account in a reference model of five different context dimensions developed by Zimmermann et al. (as cited in Specht & Ebner, 2011). These are identity, environment, relations, time, and activity. Information exchange, facilitation of discussions and brainstorming, social presence, communication leadership, alike engagement and immersion are identified as major aims of mobile-supported learning scenarios (Specht & Ebner, 2011).

Specht defined a common model for conceptualizing mobile and ubiquitious learning aoolications with "**A**mbient **I**nformation **CH**ann**El**s (AICHEI)" (as cited in Specht & Ebner, 2011). Specht (2009) identifies his model as a model describing patterns of contextual learning support in a generalized way. His model is an integration of his ten-year research about context-aware computing, information modelling, adaptive hypermedia and instruction, instructional design, and human-computer interaction. In this model information are processed on four levels: sensory, aggregation, control, and display (as cited in Specht & Ebner, 2011).

microlearningearning is a dynamic and interdisciplinary field (cf. Traxler 2007, Parzl & Bannert, 2013) that requires continuous investigation. There is no common definition and conceptualization of microlearningearning, likewise philosophical, pedagogical, and psychological background; therefore, the requisite for more research studies is evident (cf. Parzl & Bannert, 2013). Besides, microlearningearning is one of the most rapid evolving field of research (Specht & Ebner, 2011).

2.1.7. Microlearning

Microlearning is a combination of micro-content delivery with a sequence of micro interactions which prevents learners from information overload. Microlearning is enhanced through mobile devices (Bruck, Motivalla, & Foerster, 2012). Agha & Ayse indicate that mobiles supply a powerful platform for personalization of learning content for some forms of learning (as cited in Bruck et al., 2012). Not only mobile devices, but also the Web 2.0 provide a vast of potential environments for microlearning. Kovachev, Cao, Klamma, & Jarke (2011) define micro learning as small pieces of knowledge based on web resources outlined under the group of informal learning processes. Web and mobile services are accepted to have great potential to support informal learning processes, specifically microlearning (Kovachev et al., 2011).

Microlearning designates from formal learning to a more direct and pragmatic approach (Krüger, 2012). It provides a learning environment that is more autonomous for learners, where they are able to reach any kind of information on-demand from their mobile devices that are connected to the internet, independent from any restrictions of formal education. Microlearning become an everday activity of individuals in a society, even checking eMails or watching a video on YouTube about a subject-matter that aroused several questions which require immediate responses are counted as different forms of microlearning (cf. Krüger, 2012). Bruck indicates that “microlearning has become the most common everyday practice in the information society. It’s the way we breathe in information and exhale communication. We do it when reading and writing e-mails or mobile texts, blogs and wikis, or when we google and podcast, set up aggregations & feeds” (as cited in Krüger, 2012).

Microlearning implies spontaneity, active seeking for knowledge, informal learning, and the instant application of the knowledge or skills learned, on the web; the learners have higher levels of motivation where they retrieve information themselves and for their

personal gains; thus the learning effect of microlearning is considerably high (Krüger, 2012).

Bruck suggests that formal eLearning platforms are found to be too static and quickly outdated whereby the adaptation of the eLearning system to the needs of the single user is not possible; as a consequence the use of such macro learning in eLearning contexts does not succeed (as cited in Krüger, 2012). Small chunks of information are required for more personalized learning and these should be “open” to any individual actively seeking information, such as open access to digital repositories of universities (cf. Krüger, 2012).

Adult learning principles developed by Malcolm Knowles are significantly associated with microlearning environments. Adults learn autonomously and self-directed; they have diverse previous experiences thus there is a need for learning content targeted to the single learner’s needs, wants, and learning style; they learn within a goal-/life-/ or problem-oriented environment. Prensky identifes the conceptual meaning of digital natives and categorizes them as individuals born into a digital era; they are used to immediate access to information; they prefer games, graphics, multimedia-based, and interactive learning; they prefer random access and want to decide for themselves in what way and at what pace to learn; they are learning self-directed by trial and error instead of learning the theory first; they prefer to learn from colleagues, friends, movies, the internet, etc. rather than from lessons; they want to be creative in finding solutions instead of letting someone tell them exactly what to do; and they want to be treated and taught as individuals (as cited in Krüger, 2012). The characteristics of microlearning and digital natives are strongly interwined. Digital technologies caused a change in the behavior of the individuals who are raised up in interaction with them. Digital natives and digital immigrants carry alike characteristics of digital technologies that have adjusted their behaviors.

The traditional methods for learning are not attention getting for adult learners and digital natives, whereby the instructor is accepted as the major resource of learning. The autonomy of learners and learning environments is required to gain attention and increase the success of digital learners. Thenceforth, information provided in micro units will equip digital learners with necessary information to be able to connect new information with previous knowledge patterns in order to construct new knowledge patterns. Fast, convenient, and instant capture of the self-identified knowledge gaps constitute microlearning. Online resources help to understand self-identified knowledge gaps, the

creation of a learning object out of these online resources, and the integration of that learning object into small learning activities interwoven into our daily life (Kovachev et al., 2011).

"Microlearning units should be accessible online, offer immediate access, be multimedia based, interactive, and/or peppered with graphics. Learners should find information directly on their personal topic of interest (random access) and in their own environments like Facebook, YouTube, search engines, blogs etc. where they have the chance of finding the information, even when they do not know the source of it (Krüger, 2012)."

Simon, Lowenstein, Cowan accentuate that learning in smaller chunks is supported by cognitive psychology. Holotescu & Grosseck demonstrate primary examples of learning in smaller chunks as the short message sevice (SMS) and Tweets. Furthermore, Simon supposes that if the information is broken into small digestible parts, people can learn better and more effectively, which constitutes the basic notion of microlearning (as cited in Bruck et al., 2012).

Bruck et al. (2012) postulate that microlearning does not provide seperate learning sessions, rather it is integrated into several activities of learner. Microlearning could not be accepted as a complete learning environment, thus it compliments other forms of learning to support the autonomy of learner in an ubiquitous fashion.

Bruck highlights that when microlearning is compared with the traditional forms of technology-enhanced learning (eLearning), there are three aspects that distinguish both from each other: a reduction in the amount of learning content to avoid cognitive overload via structuring of content into small chunks; re-design of learning processes and environments according to the paradigm of small learning units; and provision of ubiquitous learning environments for learners within their personalized learning environments. Additionally, Robes argues that microlearning is driven by technological innovation, economic imperatives, and cultural practices, considering these three aspects (as cited in Bruck et al. 2012).

Didactics of microlearning is being broadly discussed in the literature (cf. Hug, 2007). Kerres (2007) investigates the use of instructional design theories and models within microlearning environments. Instructional design theories and models are majorly top-down models that delineate course design procedures where the instructor and learners are stuck to an exact course plan. Nevertheless, microlearning is an autonomous learning

environment for learners where they are able to reach any information on-demand, any time, and any where. Mobile devices and social software grant several personalized learning environments for learners where learners self-direct their learning processes that involve setting of objectives; searching for micro-content; comparison of perspectives through analysis and synthesis of micro-content; participation in online communities; networking; and construction of own reality. This is an open, flexible, and dynamic learning proccess that disables exact attachment to planning of course content and learning environment.

Instructional design is being conceptualized as an engineering approach that relates to transformation of given state into a desired state. The instructional design models are begun to be widely questionned with the rise of constructivist epistemology in the early 1990s asking whether the instructional design models are still meaningful in an environment where learners construct their own knowledge patterns, which raises another question asking whether the selection and sequencing of learning materials might not be easier done by learners themselves (according to their own learning preferences) instead of instructional designers/computers or not? The own arrangement of learning materials by learners aroused discussions on “digital literacy” levels of learners and the need for educating learners as competent users and participants in a knowledge society. Moreover, “Wikis” are major examples of self-arrangement of learning materials where learners generate their own sequences and actively participate in production of such materials (cf. Kerres, 2007).

German “Didaktik” highlights that an instruction can not be planned, it can only be prepared. Learners acquire a level of education through instruction which has to allow for a high flexibility in a lesson or course structure. In such a condition, learning materials would be considered as starting points for individual reflections as well as discussions with others (Kerres, 2007).

The internet transformed to “learning material” rather than being a primary “knowledge base” with its vast resources, not by instructional designers or computer algorithms but the learners themselves. The task of instructional design would imply to provide an arrangement of contents and tools that can be intrinsically interwoven with the personal workspace of the learner in such a scenario. Besides, instructional design could be accepted as a user-generated activity in which the learners are encouraged to develop exploratory search and learning strategies by the environment. Instructional design

should provide tools for active and colloborative production of contents. Thus Web 2.0 transforms instructional design into a more complex phenomenon that is not a completely new approach rather the integration of various views in different theoretical traditions are aimed (Kerres, 2007).

Microlearning is not a new phenomena; however, eLearning 2.0 brought new insights to microlearning and raised disucssions on its pedagogical integration into formal education settings as a supplementary informal learning environment where learners (digital natives, digital immigrants, adult learners) are encouraged to build their own personalized learning environments which are considerably autonomous and enhance connectivist construction of knowledge.

2.1.8. Learning Analytics

Johnson et al. (2012) define learning analytics (LA) as the analysis of information about learners that allow educational institutions to make informed adjustments to a learner's learning experience by revealing emerging directions for observation of patterns in complex data. Chatti, Dyckhoff, Schroeder, & Thüs (2012) identify learning analytics as "development of methods that harness educational data sets to support the learning process". It is a multi-disciplinary field involving machine learning, artificial intelligence, information retrieval, statistics, and visualization (Chatti et al. 2012). Eventually, Siemens, Gasevic, Haythornwaite, Dawson, Buckinghum Shum, Ferguson, Duval, Verbert, & Baker (2011) characterize learning analytics as "the measurement, collection, analysis, and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs."

"LA concepts and methods are drawn from a variety of related research fields including academic analytics, action research, educational data mining, recommender systems, and personalized adaptive learning (Chatti et al., 2012)."

Academic analytics aid instructors, tutors, coaches, or supervisors to monitor academic performances of learners (cf. Chatti et al., 2012). McNiff and Whitehead define action research as a methodology popular at universities and schools around the world whereby Altrichter underlines that it enables teachers own investigation and evaluation of their work (as cited in Chatti et al., 2012). Improvement of teaching practice and assurance of quality are the purposes of educational action research (Chatti et al., 2012). Educational data mining is emerged as a recent independent research area (Chatti et al., 2012) and Romero et al. accentuate that "it is concerned with developing methods to explore the

unique types of data that come from an educational context, and using these methods to better understand students and the settings in which they learn (as cited in Chatti et al., 2012)." Moreover, data about user's behavior or preferences aggregated by recommender systems in order to draw conclusions for recommendations of items that the user most likely be interested in (Chatti et al., 2012). These recommender systems are outlined by Adomavicious & Tuzhilin as content-based recommendations, collaborative filtering (linking of user's behavior with similar users and offer recommended items those similar users liked in the past), and hybrid approaches (combination of collaborative and content-based methods) (as cited in Chatti et al., 2012). Eventually, personalized adaptive learning refers to a research field that focuses on adaptability of course materials to learner's personal learning preferences in order to improve learner success/performance where they self-direct, self-organize, and self-control their learning to maintain their own personal learning environments (cf. Chatti et al., 2012).

Learning analytics if applied and interpreted correctly will enable educational actors to more precisely understand learner's needs and to design instructions tailored for personal preferences of learners (cf. Johnson et al., 2012). Not only analysis of learner performances, but also analysis of instructor performances will enhance the quality of teaching with emerging technologies in the framework of action research. Furthermore, recommender systems will provide additional assistance for learners according to their level of expertise jointly with personalized adaptive learning on PLEs. Consequently, the major focus of learning analytics is on learner and learner success.

The educators have no access to integrated toolsets that contaminate varied and complex evaluations of learner performance and comparisons between different sets of learners (Siemens et al., 2011). Siemens et al. (2011) propose development of an integrated and extensible toolset that can assist academics and organizations about learner performances and deterimine needed interventions and improve learning opportunuties. Meanwhile, they underline that such a toolset will have a learner interface where learners can keep track of their learning performances which would be motivationg for them. Social software tools assumed to provide a few of mentioned features but the extent of the toolset prescribed by Siemens et al. (2011) involves: learning analytics engine; adaptive content engine; intervention engine (recommendations and automated support); and dashboard, reporting, and visualization tools.

As new informal learning environments continue to develop and integrate into formal teaching and learning circumstances, it becomes considerably difficult to measure learner performances (big data). Therefore, new tools for analysis rather than reporting is required to observe how well learners are performing with the determined instructional scenarios. The analysis of learner performances will enhance the quality of teaching and learning with emerging technologies and learner success, specifically in the framework of eLearning 2.0.

Table 3

Tools of Social Learning Analytics (Buckingham Shum & Ferguson, 2012)

Social Learning Analytics	**Tools**
	Inherently Social Analytics
Social Network Analytics	*Mzinga*, *SNAPP* (Social Networks Adapting Pedagogical Practice), *Gephi*
Discourse Analytics	Wordle, Tag Crowd, NVivo
	Socialized Analytics
Content Analytics	Web-based search engines: Google, Yahoo, Bing Nvivo & Atlas.ti Multiple Episode Protocol Analysis (MEPA)
Disposition Analytics	ELLI (Effective Lifelong Learning Inventory)
Context Analytics	MOBIlearn project

Buckingham Shum & Ferguson (2012) proposed social learning analytics that are strongly grounded in learning theory and focus attention on elements of learning in a participatory online culture. The focus of social learning analytics is on social processes (collective intelligence) rather than individual processes (individual achievement). Interaction between potential stakeholders constitutes an added value in social learning analytics. Social network (interpersonal relationships) and discourse analytics (language) are inherently social analytics that only make sense in a collective context. Content (user-generated content), disposition (intrinsic motivation), and context (mobile computing) analytics are socialized analytics that are more relevant as personal analytics; however, they have important new attributes in a collective context (see Table 3).

Learning analytics is not a new research field; however the rapid development of Web 2.0, and even Web 3.0 technologies emerged new dimesions for the exiting fileds of

research. Thus, discussions arise in the field of learning analytics that requires interdisciplinary collaboration to bring new insights to evalaution and quality assurance of teaching and learning with eLearning 2.0.

2.1.9. Open Educational Resources (OER)

"OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge (Atkins, Brown, & Hammond, 2007)." Geser underlines that this definition is often cited in research studies covering aspects of OER; nevertheless, there is still no universally accepted definition of OER (as cited in Deimann & Farrow, 2013). Downes define OER as "materials used to support education that may be freely accessed, reused, modified, and shared by anyone" (as cited in McKerlich, Ives, & McGreal, 2013).

Free, equal, and open access to digital learning objects is the major well-known characteristics of OER. Chiappe defined the learning object as "a digital self-contained and reusable entity, with a clear educational purpose, with at least three internal and editable components: content, learning activities and elements of context", arguing that "learning objects must have an external structure of information to facilitate their identification, storage and retrieval: the metadata" (as cited in Deimann & Farrow, 2013).

Learning content migth consist of course curricula, learning objects modules, blogs, and repositories, with formats including text, images, audio, video, interactive simulations, and games. These materials are released under the appropriate Creative Commons licence where authors are able to legitimate the use, re-use, re-appropriation, and re-mixing of open content; thus the restrictions for learners and educators are removed (Deimann & Farrow, 2013). Teaching and learning materials may include several forms of works, such as: texts, graphics, photographs, and drawings. OER are designed in each digital form and these forms can be distributed to each digital media; even, these can be multimedia configured where the content may contain music and video together. Moreover, computer software and databanks can indeed be OER (cf. Kreutzer, 2013).

Open Educational Resources (OER) facilitate the expansion of learning worldwide. The deployment of learning objects as OER are being supported on a wide variety of

different devices, whether mobile, on the desktop, or in print. The instructors and learners are liberated from concerns about permissions (how, when, where, and how long the content, video, audio, or application can be used) with the rapid infusion of OER (McGreal, 2013). OER provides a broader range of subjects and topics to choose from and allow more flexibility in determination of material for teaching and learning. The reuse of resources saves time and effort in which it allows engaging teachers to benefit from value of resources through providing their own personal assessments, lessons learned, and suggestions for improvements. Moreover, OER provide learning communities (groups of instructors and learners) with easy-to-use tools to set up collaborative learning environments whereby user-centered approaches (development of ePortfolios, sharing of study results and experiences with peers) are promoted. Eventually, the pool of resources is enriched through OER (Geser, 2012).

Open access to high quality digital educational materials is the purpose of OER movement. A plenty of universities, private organizations, and others are participating broadly with several projects such as the Internet Archive (see http://internetarchive.org), Project Gutenberg (see http://gutenberg.org), Wikipedia (see http://wikipedia.com), Creative Commons (see http://creativecommons.org), Sun Microsystems Global Education Learning Community (see https://edu-gelc.dev.java.net/nonav/index.html), and the OpenCourseWare Consortium (see http://ocwconsortium.org). The list of participating organizations augments dynamically in conjunction with the diffusion of “openness” principles in education and research (Caswell, Henson, Jensen, & Wiley, 2008).

The meaning of “open” in OER , open content, or open access is not wholly associated with “free of charge” or “cost-free”; rather, “freedom of use” is more descriptive in understanding the meaning of “open”. A chargable book might indeed count as an OER, only if its contents have an open licence in which the users are enabled to copy, enhance, and distribute its contents without paying any fees for granting the user rights. Furthermore, a chargable online repository could indeed be an OER, as far as the teaching and learning materials are licensed under a royalty-free open content licence. The use of OER is free of charge; nonetheless, the production of OER is not. In fact, the services and/service providers may charge the users for the service they provided, not for the open content (cf. Kreutzer, 2013).

Downes points out that the OER production is largely voluntarily and motivation is altrustic. Individuals develop OER deliberately within a community where human

interaction is compulsory and the motivation is obtained from the emotional ownership which is accentuated by Pawlowski. Clements & Pawlowski define emotional ownership as “the degree that individuals perceive that knowledge or resources belong to them”. Downes indicated that this view of emotional ownership might be perceived as contradictory to the community of OER; nevertheless, he underlines that because of altruistic motivation for creating OER, emotional ownership strengthens the community. When emotional ownership is jointly administred with organizations such as Creative Commons Public Licenses, it might contribute to opening up the private practice of teaching and scholarship in higher education institutions. Pawlowski figured out a four-phase collaborative development cycle for OER involving sequentially organized phases such as design & develop, redesign, reuse, and republish, in which he emphasizes that emotional ownership can increase as reuse and republishing occur in their respective communities (as cited in McKerlich et al., 2013).

The definition of OER is dependent on the objective to use open content in diverse contexts. For instance, if the aim is the provision of open content to individuals who can not afford it or to societies in which international development cooperation is essential (the democratization of content), the definition of OER will include the “cost-free” statement. Nevertheless, if the objective is the development of collective intelligence, then the focus shifts onto the “freedom of use” while individuals are adapting open content through enhancing and optimizing it according to their preferences and construct new contents for the collective use within a knowledge society without any obligation to consider the copyright of materials they have integrated that are already under an open licence (creative commons licence) (cf. Kreutzer, 2013).

OER do neither represent online learning nor eLearning, although the terms are used interchangeably by many individuals. Openly licensed content can be produced in any medium or format: paper-based text, video, audio, or computer-based multimedia. eLearning courses might harness OER, in fact, neither eLearning nor OER are able to replace each other. There is no pedagogical or instructional consideration behind OER; thus OER is not the same as open learning or open education. Resource-based learning is found to have an indirect relation with OER while both approaches are based on resources. Nonetheless, there is no deliberate instructional strategy behind OER to shift to resource-based learning. Certainly, most current practice in resource-based learning uses completely copyrighted materials rather than OER. However, linking OER and resource-

based learning provides an opportunity to leverage both most effectively (Kanwar & Uvalic´-Trumbic´, 2011).

Higher education institutions have growing interest to participate in this "open" movement and indeed, many institutions, businesses, and even individuals are creating OpenCourseWare content (cf. Caswell et al., 2008). A radical rethink of the extent of course materials and educational resources is emerged with the OER movement (Ossiannilsson & Creelman, 2012). Trigwell & Shale point out that teachers can build communities of practice and widen the concept of scholarship of teaching and learning by sharing resources and ideas (as cited in Ossiannilsson & Creelman, 2012). Furthermore, a wiser use of shared resources frees up the workload of instructors from the burdensome and time-consuming role of material production and allows more time for the role of facilitator/motivator/mentor (Ossiannilsson & Creelman, 2012).

Geser (2012) from the OLCOS project indicates that the current educational practices are decisive whether/how digital educational content, tools, and services will be expanded and implemented; particularly, if the recent practive of teacher-centered knowledge transfer remains constant, then OER will have little effect on making a difference in teaching and learning. Nonetheless, Burrus form the Connexions project underlines that "delivering modern OER to the traditional teachers may not be as effective as delivering it to modern teachers, but it is better than nothing. (…) important change occurs in two phases: first, you do the old job better, then you redefine the job. Some of the traditional teachers will change, just slowly and partially. I strongly recommend involving EVERYONE if they will cooperate at all (as cited in Geser, 2012)."

OER will restructure education if they are successfully integrated into formal educational settings, while OER enriches the content taught at educational institutions with its great pool of information that is either developed or ehanced by collective and collaborative action (collective intelligence) of active individuals (users). OER is a sub-branch of eLearning 2.0 which provide digitally revised resources (open content) that are operatable on any digital device and can be adapted to the individual preferences of instructors and learners. Therefore, OER change the content structures of recent educational practices and bring up new insights for current practices that focuses on "openness" in education and research, in order to improve and diffuse the "freedom of use".

2.1.10. Massive Open Online Courses (MOOCs) – xMOOCs vs. cMOOCs

A MOOC is an online course offered by any individual or institution on a platform that host many other alike courses or a stand-alone course that provide connectivity of social networking, the facilitation of an acknowledged expert in a field of study, and a collection of freely accessible resources. MOOCs are build upon active engagement of several hundred to several thousands “learners” who self-organize their participation accroding to learning goals, prior knowledge and skills, and common interests. Moreover, a MOOC do not demand for any fees, prerequsites (other than internet access and interest), predefined expectations for participation, and formal accreditation; as if it shares some features of an ordinary course (McAuley, Stewart, Siemens, & Cormier, 2010).

George Siemens and Stephen Downes facilitated the first MOOC “Connectivism and Connective Knowledge” in 2008, which is offered by the Learning Technologies Centre and Extended Education at the University of Manitoba (Downes, 2008). 25 paid (for credits) and 2200 (non-fee) learners are enrolled in the online course that was designed with the principles of connectivism (cf. Siemens, 2005).

In 2011, Sebastian Thrun, Professor of Informatics at the University of Stanford runs an open course about “Artificial Intelligence” in which 160.000 individuals participated. In the beginning of 2012, he established the company of Udacity which offers open online massive courses, together with Peter Norvig (Director of Research at Google). Afterwards, Daphne Koller and Andrew Ng established the company of Coursera. Eventually, edX is established with the cooperation of Harvard University and Massachusetts Institute of Technology (MIT). Eventually, UC Berkeley and other higher education institutions become members of edX. Several MOOC platforms are further established. (Schulmeister, 2013).

The intially organized MOOC is a representative of cMOOC and the further organized MOOCs are representatives of xMOOCs. The rapid diffusion of the MOOC revolution around the world, introduced diverse perspectives into open education. Siemens has proposed to categorize MOOCs into two: xMOOCS (video lectures with lack of interactivity) and cMOOCs (engagement of learners in a self-organized social learning process based on a connectivist pedagogy) (as cited in Grünewald, Meinel, Totsching, & Willems, 2013).

xMOOCs consist of organized lecture recordings that are strongly attached to a predefined schedule under proprietary licenses (cf. Grünewald et al., 2013) where one or

more teaching individuals prepare lecture recordings, place self-assessment tests under each video sequence for obtaining a statistical evidence on learner performances that acertains their percentage of success at the end of the course, and install forums for enhancing communication between peers, not between tutor(s)/mentor(s)/supervisor(s) and learners (cf. Schulmeister, 2013).

cMOOCs involve connectivist principles of learning developed by George Siemens (cf. Siemens, 2005); learning is viewed as residing in the connections that exist between people and digital artifacts within an ubiquitous network (Milligan, Littlejohn, & Margaryan, 2013). “cMOOCs often make use of open educational resources, and allow learners to coconstruct the learning process through their interactions (Grünewald et al., 2013).” Learners actively participate in cMOOCs and engage with each other in order to collectively and connectedly construct new knowledge patterns. Collective intelligence is a part of cMOOCs where teachers and learners considerably benefit from social software tools.

cMOOCs benefit from the potential of social software in which learners build their own personal learning environments (PLEs) and connect with the PLEs of peers; thus connectivist peer learning is the maniphesto of cMOOCs. A central web address may be used for registeration and course organization processes where course outline, support, and form of communication is showcased. Individuals may follow up the course flow on the official web address and return to their own learning environment to perform their learning tasks. The PLEs of learners are followed either by hashtags (keywords) used in their blogs or linked materials on social networking sites such as Twitter. Indeed, several learning analytics tools are used to keep track of learners if desired (cf. McAuley et al., 2010).

The PLEs of each individual learner merge with each other via used hashtags (keywords) and links embedded into the official web address of the course, so that the learners gain the chance to self-evaluate them selves via comparing and contrasting their performances through discussions. “They negotiate and define topics, working networks, and goals with others who share common interests and concerns. (…) Participation in a MOOC is emergent, fragmented, diffuse, and diverse (McAuley et al. 2010).”

Stephen Downes, George Siemens, and Dave Cormier developed a further MOOC about “Change: Education, Learning, and Technology” that begun in september 2011. Thenceforth, they suggested four major types of activity: aggregate (collect information),

remix (document your learning process with using diverse social software tools), repurpose (self-reflectionconstruction of a new knowledge pattern), and feed forward (sharing of activities with the network), that is considerably based on connectivism (as cited in Pauschenwein, 2012).

xMOOCs do neither provide a social environment between peers (except forums), nor provide an access to the instructor. In forums, learners participation rates are measured approximately 3% and 90% of learners are identified as lurkers (cf. Schulmeister, 2013). Indeed, learners participate interactively in the first week, but the number of participative learners decreases incredibly in upcoming weeks; thus, learners drop-out (cf. Pauschenwein, 2012).

xMOOCs are more centralized than cMOOCs and strongly attached to a predefined curriculum where autonomy of learners is limited. Nonetheless, cMOOCs are decentralized (van Treeck, Himpls-Gutermann, & Robes, 2013) allowing flexibility to learners to operate on several platfforms according to their preferences. Contrarily, cMOOCs are being accepted as qualified educational scenarios that integrates hybrid and blended learning forms, in which the aims is not to replace present education.

There is a growing interest in MOOCs. Nonetheless, major research studies investigated MOOCs in terms of “learner perspective” with a significant minor focus on the institutional threats and opportunities. The lack of published research on MOOC facilitators’ experience and practices, ethical aspects on the use of “big data” collected from participants, the raison d’être of participation in MOOCs, and data on completion rates rather than drop-out rates, leaves a significant gap in the literature (cf. Liyanagunawardena, Adams, & Williams, 2013).

MOOC facilitators are able to record learner performances whilst conducting a MOOC and evaluate them with the help of learning analytics. However, the ethical aspects on the use of learners data for research is critical. Schulmeister (2013) highlights that examining learners data (big data) without their permission and recording of them for research purposes is controversial, specifically in Germany. Moreover, another argument by Schulmeister reveals that the “big data” collected from abundant learners is not evidence for evaluating “human learning” such as evaluation of motivation, intentions, objectives/plans, physical factors (fear, concentration, successful experince, distraction, procrastination, learning strategies); rather, “big data” provides only an extent of user statistics, sucess of text passages, exercises, test questions, and video lectures. In other

words, one can successfully evaluate “time management” of learners quantitatively with the help of learning analytics, but one can not evaluate learning habits of individual learners qualitatively.

MOOCs offer no formal accreditation to learners. A minor number of MOOCs is exceptional; nevertheless, these are under serious critics. MOOCs run by educational technology companies such as Coursera and EdX provide the option to pay for certification such as Coursera, where they organize proctored exams for a fee; afterwards, learners gain certification if they succeed. Moreover, some MOOC-offering institutions and/or instructors provide a “Statement of Accomplishment” for successful students. However, these generally do not carry college credits (Liyanagunawardena et al., 2013).

Schulmeister (2013) argues that the content of Coursera course “Bioelectricity” (executed by Duke University) was not matching with the text-book of the course where the details in mathematics and the number of subjects were considerably different. Furthermore, the number of weeks of a MOOC (6-8 weeks) and a present course (14 weeks) is contrasting. In such a situation, where there is no balanced relationship between MOOCs and present forms of education, one can not speak of giving formal credits. 72% of scholars that already taught a MOOC, agreed that their university should not disseminate credits for MOOCs, according to results obtained from the questtionaire conducted by The Chronicle of Higher Education. In addition, the examinations to evaluate learner performances are indicated as implausible; the anonymity of learners open the field of examinations in MOOCs for detailed discussion. Although, there are a few developed systems used by Udacity in cooperation with Pearson where test centers are hired for controlling learners during examination or by Coursera where “signature track” system is attained for safety (as cited in Schulmeister, 2013), there is no standard system for evaluation.

In humanities and social sciences subject-matter contexts, it is considerably difficult for tutors/mentors/supervisors to evaluate analytical texts with annotations, responses, interpretations, critical statements, and discourses of learners. Therefore, peer review can be integrated to reduce the workload of facilitators. Nevertheless, peer review is a doubtful way of evaluation as underlined by Rees who reveals that the participants are not active reviewers in the context of MOOCs. To overcome the problem, edX integrated a software for evaluation of essays. Mechanical examination of humanities and social sciences texts is improper; a machine is neither able to understand the content and the

context, neither it has cognitive and constructive skills to run an evaluation of a text that is critical and interpretative. Nonetheless, humanities and social sciences scholars protest against machine schoring of students essays in high-stakes assessment (http://humanreaders.org/petition/index.php) and collect signatures for a petition (as cited in Schulmeister, 2013).

The extent of how the quality of a MOOC will be assured in order to deliver accreditation is being questionned in the study of Eaton (2012) where she inquires whether or not there is a requisite to look from a new lens toward the accreditation in MOOCs. However, the answers of alike questions are still open-ended.

In xMOOCs, a tutor is not present for guidance which may decrease the motivation of some learners and personalize MOOCs for certain types of learners who have an interest in life-long learning and do not have any doubts about a formal accreditation. xMOOCs have an official forum where learners can effectively exchange (aggregate, remix, and repurpose) information. Nonetheless, learners are considerably passive and a great number of learners are “lurkers” (cf. Schulmeister, 2013).

cMOOCs and xMOOCs are significantly different than each other. cMOOCs offer wide range of possibilities for learners in which learners interactively engage with content, context, and materials in a many-to-many approach. cMOOCs are not designed to replace traditional courses; they are enhancers of traditional courses that offers an informal platform for learners to increase learner autonomy and control in education. Networking, social connectivist learning are core elements of cMOOCs. The democratization of education which is mentioned by Thrun (as cited in Schulmeister, 2013) is being realized more in cMOOCs rather than xMOOCs; giving chance for every individual to learn the desired subject-matter informally in order to enhance their knowledge patterns by interacting with a network (learning community) where they can exchange information and collaboratively construct new knowledge patterns. xMOOCs are under domination of financiers (business models) that may destroy the core maniphesto of MOOCs. However, individual teachers may execute cMOOCs in their own initiatives where they can integrate strong educational considerations (blended learning, hybrid learning, flipped classroom) into their MOOCs to succeed. Nonetheless, how long would those teachers handle the workload of cMOOCs is another inquiry (Schulmeister, 2013). In fact, cMOOC teachers and learners might have higher levels of motivation than xMOOC stakeholders while cMOOCs are intentional courses developed by teachers who

have a strong ideology behind. This voluntary action strengths cMOOCs approach and brings it one step further.

2.1.11. Flipped Classroom

Flipped classroom is a learning centered pedagogical model that causes comprehensive change in class dynamics which is pioneered by chemistry teachers Jonathan Bergman and Aaron Sams of Woodland Park High School in Colorado (Hamdan, McKnight, McKnight, & Arfstorm, 2013). The key ingredient of flipped classroom is the short video lectures (5-7 minutes) that are situated before in class time for learners, to conceptualize and aggregate necessary information for active participation in class exercises, workshops, and practices. Instructors either self-create videos or select subject-matter specific videos from open online repositories. Projects, exercises, discussions, and other hands-on activities related to subject-matter context are realized in class hours. Active learning, student engagement, hybrid course design, and course podcasting are integrated into flipped classroom model of learning. Flipped classroom reverses recent classroom practices and restructures the classroom into a studio. Class time is repurposed into a workshop where learners inquire content, test their skills in applying knowledge, and interact with each other in hands-on activities. Instructors act as coaches or advisors who clarify content and monitor progress of course and learners; encouraging learners in individual inqiry and collaborative effort. There is no single model of flipped classroom; thus, a few or all elements of an instruction can be flipped depending on the instructor's initiatives (cf. Educause, 2012).

The inversion of expectations in the traditional college lecture is described by flipping. Forms of flipping involves interactive engagement, just-in-time teaching (in which students respond to Web-based questions before class, and the professors use this feedback to inform their teaching), and peer instruction. All techniques of flipping are based on active learning, learners cannot passively receive materials in class; thus this explains the extent of flipping dislikes by some learners (Berret, 2012).

Technological innovation facilitate the distribution of lectures by world's leading instructors such as in the case of MOOCs, in particular the cMOOCs. Policy makers, scholars, advocacy groups, and others who seek to improve higher education desire to see more evidence on effectiveness of learning in college. Even, budget constraints of higher education institutions embraces its stakeholders to search efficient ways for implementing effective learning. The convergence of flipping classrooms into present educational

settings enhances the quality of higher education; addressing the predefined aspects. Moreover, flipping courses is not a new aspect, humanities and social sciences used flipped instructional materials for years. Indeed, subject-matter contextual differences demonstrate significant differences in teaching and learning activities; for instance, STEM disciplines embodies didactic teaching via dissemination of content and humanities and social sciences integrate methods about exploring ideas (cf. Berret, 2012). However, recent flipped classroom approach are initially executed by chemistry teachers and diffused to several STEM disciplines such as in the case study of Ryan (2013) where flipped assignment approach is integrated into the mixed course of pharmaceutical, food,

and nutraceutical students; he concluded that "student engagement and student ownership of learning was achieved by giving the students freedom to explore their bounded learning environment as part of a group and by including the student cohort in the design and implementation of the assessment."

Bergmann and Sams highlight that flipped learning model enables deeper learning. Indeed, Gojak underlines that it is not important to ask whether or not flip classroom, instead, professional educators need to ask how they can benefit from the potentials of flipped learning to become more effective teachers and increase students' conceptual understanding. Furthermore, Bergmann and Sams accentuate that flipped learning might not be appropriate for entire classes (as cited in Hamdan et al., 2013) where Hamdan et al. (2013) indicate that "flipped learning might not work for all educators and students or with all grades and subject matters. Thus, more research is required that draws a framework of flipped learning that focuses on who benefits, in what ways, and in what contexts, it would help educators to understand when flipping the classroom would benefit learners and when it might not be warranted."

More qualitative and quantitative research should be done to identify the extent of flipped learning model. However, existing research clearly demonstrates that the flipped learning brings new insights into creating learner-centered classroom environment. It is not the only way to create a complete learner-centered classroom in order to solve all educational issues; nonetheless, it might be one way to enable learning (Hamdan et al., 2013).

Emerging technologies follow a linear development in the field of education in conjunction with the requisites of the determined era. Those technologies are integrated into specific contexts according to needs and wants of individuals, organizations, and

societies. Technologies continue to evolve and diffuse into different systems. Nevertheless, the diffusion of technologies in education require careful analysis with regards to “human learning” for an efficient and effective integration. Therefore, next part will continue with theories and models of teaching and learning.

2.2. Education

2.2.1. Philosophy of Education

Philosophy is the search for an understanding of reaching to normative values and reality by speculative means. It is a process of inquiry. Furthermore, philosophy is an important guide for living. Human life is highly influenced and governed by the philosophical consideration. As a field of study, philosophy is one of the oldest disciplines and it is considered as an umbrella term for all sciences; thus it is the root of any sort of knowledge.

The philosophy of education is divided into three parts as ontology, epistemology, and axiology beginning from the ancient Greek times. Idealism, realism, spiritualism, naturalism, cultural approach, pragmatism, and individualism are developed in certain time periods and influenced from socio-cultural and political circumstances. Education has drawn its ideals from those approaches. Hence, it is defined as the transfer of information, abilities, and values in a society.

Plato, Aristotle, and Socrates (ancient Greek philosophers) internalized idealist and realist approaches toward education whereby the personal growth of a human being is more important than occupational growth. Teacher-centered instruction was the acknowledged educational method that is dialectical. Thenceforth, spiritualism has aroused until renaissance which had a significant hierarchical structure. Ghazali was one of the important philosophers of spiritualist approach to education. Spiritualism embraces education as a life-long process where the God is the power of knowledge; thus the aim of education was to have a good character before the return to the creator. Indeed, the teacher should be a good linguist and professional communicator (cf. Cevizci, 2009). Ghazali divided sciences into two as mind-oriented sciences (mathematics, logic, natural sciences, metaphysics, and politics) and spiritual sciences (religion, linguistics, and literature) (as cited in Cevizci, 2009).

Naturalist approach has aroused in sixteenth century and developed by the English enlightenment philosophers as Bacon, Hobbes, Locke, and Hume; and French Enlightenment philosophers as Diderot, d’Alembert, Voltaire, Helvetius, and J.J.

Rousseau. It relies on the acceptance of nature and the complete understanding of the real world. Thus, science is accepted as the source of knowledge rather than God. (Cevizci, 2009).

According to Dunn, naturalist philosophy of education is one of the first examples of child-centered education. In addition, Baert stated that it is based on progressivism and against to the metaphysics. It follows a mechanical and an atomistic approach. Indeed, it excludes socio-cultural structures of a society (as cited in Cevizci, 2009). Naturalism strongly contradicts with the philosophy of social sciences. However, naturalist epistemology emphasizes the need for social sciences and indicates that human mind is a "tabula rasa"[4] and all human beings learn whilst experiencing the world around them (cf. Cevizci, 2009).

Naturalism had great consequences on philosophy of education and it diverted education to a radical shift. Learner-centered education was adapted on behalf of teacher- and/or topic-centered education. According to the naturalist curriculum, education is a process whereby biological processes must be taken into consideration. The child is not bound to schools and books. Moreover, it has no standard and unchangeable education program or curriculum. Bacon, Hobbes, and Comte developed primary version of naturalist curriculum that focused more on "science". In fact, Rousseau established a second version that focused more on "moral, philosophy, and literature". In naturalist methodology, learners have an active role in learning through their discovery and experiences. In contrast, the teachers do not have a central role; instead they act as observers and supervisors. They keep track of learners' performances and offer guidance (cf. Cevizci, 2009).

Epistemology on Existentialism involves cultural approach, pragmatism, and individualism. Accordingly, the experiences of an individual are subjective and personal; meanwhile, they can be rational and irrational. Indeed, knowledge is subjective because of two perspectives: own realities of human beings and personal experiences and basic interests. Cultural approach based its ideas on culture. It evaluates education as "Bildung" which is the spiritual formation of a learner in terms of adding higher values such as: language, literature, philosophy, and science to his or her own world (cf. Cevizci, 2009).

[4] The belief that human mind at birth represents a "blank state" / "empty sheet". The theory of "tabula rasa" is initially introduced by John Locke but dates back to Aristotle (Bishop, 2007)

Romantics such as Goethe, Friedrich Schelling, Friedrich Schlegel, Friedrich Schleiermacher, Novalis; and the irrationalists such as Nietzsche and Schopenhauer are the leading philosophers of cultural approach (as cited in Cevizci, 2009). These German philosophers set forth "Bildung" as the ideal of education. Indeed, the ideal of "Bildung" demonstrates a holistic understanding of character formation of an individual. Accordingly, the human being should be included in culture and realize themselves with the help of their culture. Cultural approach philosophers considerably criticized naturalist approach to education because of its single-sided intellectualism and they opposed with the educational reform in Europe and Germany in 18th Century (cf. Cevizci, 2009). This educational reform was against scholastic education. According to the reformists, a good structured education should apply both theory and practice in an educational process and should be based on pragmatic ideas where the government is at the top of educational processes. The philosophers of cultural approach are strongly against to this enlightenment that converts the aim to a tool in order to supply governmental necessities. If an individual is educated only to perform his occupation successfully, one cannot talk about the personal growth of human beings. In addition, if an individual become a faithful servant of government, there will be no hope for the realization of individuality. According to the romantics and the irrationalists, freedom is the initial and unique condition for the growth of the individuality; individuals can only be free if they are able to realize themselves through their culture. The educational theory of cultural approach is the constructivism and perennialism. Contrarily to the naturalist curriculum, the aim is to make the child familiar with philosophy, arts, and literature in order to include him or her in the determined cultural space. Eventually, another aim is the spiritual formation of learners via culture (cf. Cevizci, 2009).

Pragmatism is developed by Pierce, James, and Dewey in the beginning of 20th century. It embraces pluralism as an understanding of being. In the 20th century, pragmatism became a widely practiced phenomenon with the developments of John Dewey. The pragmatists believe that the world is always in a dynamic/continuous change which is accentuated by Dewey. Moreover, they think that "being" has an identifiable beginning but it has a more complex structure of change while reaching to the end. According to Dewey, human nature is not constant, rather it is a product of a mutual interaction between the biological organism of human nature and the surrounding social

environment; indeed human beings shape the environment they live in (as cited in Cevizci, 2009).

Pragmatism recognizes education as a tool and significantly emphasizes the social dimension of it. Education has a wide and dynamic meaning. It offers opportunities that cause a change and re-built culture with the means of inherited language and technological tools available in a society. The education theories of pragmatism are progressivism and constructivism. Learners are encouraged to explore and construct their own knowledge with the help of their experiences and to become patriotic citizens. Rather the content of the curriculum, the design is considered at the first place. Specifically, the problem-based learning is the essential learning scenario. Dewey in his article "My Pedagogic Creed" stated that as soon as students neither face with any problems, nor share their experiences, there would be no real learning. According to Flanagan, the teacher's role is divided into two major functions: guidance through the learning journey and provision of skills and abilities to learners in order to overcome possible problems in the future (cf. Cevizci, 2009).

The discourse on pragmatism has developed a further approach "individualism" which is widely practiced in twentieth century. In an era of objective reality, individualist approach makes an emphasis on the return to subjective reality and focuses on the individual. It is defined as a protest against positive science. Kierkegaad, Jaspers, Buber, Sartre, Camus, and Marcel are the initial scholars of individualist approach (cf. Cevizci, 2009).

The existentialist philosophers think that an individual creates own knowledge through the own rational and irrational experiences. The validity of it is dependent on the value and meaning that it gives to an individual. An individual's knowledge and experiences are inevitably subjective and personal. The critical aim of existentialist approach in education is to return the student to the "self". Constructivism is the main educational theory to make the student gain the understanding of the "self". Individualism follows a methodology based on dialogue, "Socratic method", and dialectic approach. The importance of topics is outlined hierarchical as humanities, social sciences, and natural sciences. Natural sciences have not so much weight as humanities and social sciences because these are more subjective sciences open to dialectic questioning. Existentialist approach does not see education as vocational; the teacher is not a technician who transfers any knowledge to the students. A teacher is an individual who should emphasize

the value of an individual, the importance of being, and the responsibility of every individual to shape their "self". Eventually, there is a dynamic development of classical educational philosophies from the ancient Greek times until recently with an emphasis on the ontological aspects of education that initiates with asking the question of "what is education?" and "how should the educational activities be designed?" Classical orientation of philosophy of education has created a basis for further philosophical discussions after twentieth century with the help of two other orientations that is analytic and critical (cf. Cevizci, 2009).

Analytical philosophy of education aroused in the beginning of the twentieth century and the primary philosophers who investigated education from an analytical point of view are Israel Scheffler, Peters & Hardre. Natural sciences are at the core of analytical philosophy of education. Additionally, there is no development of a curriculum. The aim is to analyze what is already out there in terms of outer world, thinking, and language. The analytical education philosophers indicate that education is understood contradictory from different disciplinary perspectives. Indeed, education has three different aims (see Table 4).

Table 4

Educational Aims of Analytical Philosophy Of Education (Cf. Cevizci, 2009)

Educational aims	Description
Primary	individual aims, autonomy, critical thinking, and moral education
Secondary	social aims, protection of the nature of the society and its cultural traditions, transfer of cultural history and current world view, and teaching of citizenship idea
Tertiary	professional education for occupation

Critical philosophy of education has its roots in nineteenth century. However, it showed itself subsequently in twentieth century. Critical philosophy is the synthesis of classical and analytical philosophies of education. The aim is to eliminate the wrong consciousness. It is normative in its nature and it depicts what the normative education should resemble. Moreover, it is included in continental philosophy that represents the

opposition to analytical philosophy of education with considerable emphasis on metaphysics and ethical methods in Germany and France (cf. Cevizci, 2009).

Continental philosophy encompasses philosophical movements such as Marxism, phenomenology, hermeneutics, post-structuralism, postmodernism, and feminism. In critical philosophy of education, those movements defined the educational aims. Gramsci, Freire, Giroux, and Illich are the primary scholars. Critical philosophy of education remarkably criticized the positivism (cf. Cevizci, 2009).

Positivism is the continued version of modern naturalism which does not recognize any kind of knowledge type except science and natural sciences; knowledge consists of only from scientific information and the scientific knowledge must be empirically verified. Positivism defends that social sciences have to apply natural sciences methodologies in order to be accepted as a scientific field. However, those are not appropriate methodologies for social sciences that deal with human beings and societies in a dynamic environment (cf. Baert, 2010).

Positivism is mostly criticized by Nietzsche. He stated that it is almost impossible to talk about a world independent from human beings and human judgments. In addition, Foucault criticized positivism considerably in terms of objectivity of natural sciences and indicated that it is only preparing a surface for forms of power; knowledge and power is strongly related with each other (as cited in Cevizci, 2009). Contrarily to positivism, the education theory of critical philosophy is constructivism and the aim is the freedom of each individual and whole society in terms of Neo-Marxism. Another aim is to construct a fair and democratic society with the support of education. Moreover, the educational methodology is dialectic where each student should gain a critical understanding (cf. Cevizci, 2009).

Social sciences rely more on hermeneutics (the interpretation of knowledge). Hermeneutics accepts that there are several ways in acquiring knowledge rather than positivist principles. It advocates that humanities and social sciences have epistemological values according to their own characteristics. Hermeneutics questions the modern acceptance of embodied and empirical knowledge. Hermeneutics strongly oppose with the idea that knowledge is not open to discussions (doubtless acceptance of knowledge as right). In addition, it is a crucial component of social sciences that is developed by Schleiermacher, Dilthey, Heidegger, Gadamer, and Ricaeur (as cited in

Cevizci, 2010a). Eventually, it is an art of interpretation where social sciences patterns rely upon.

Dilthey indicated that hermeneutics aim is to “understand” (alike in social sciences), rather than to “explain” (alike in natural sciences). Furthermore, he stated that humanities and social sciences should be interpretative alike each individual. This thought of Dilthey is further developed by Heidegger and he accentuated that human beings are living in a chaotic world where they cannot understand everything but they have to deal with the reality, thus they need hermeneutics. Moreover, a further thought on hermeneutics is developed by Gadamer who questioned the necessity of methodology use for humanities and social sciences. He indicated that use of any methodology makes social sciences one step close to natural sciences (as cited in Cevizci, 2010a). However, the humanities and social sciences texts are controversial and highly dependent on the subjective interpretation of the reader or researcher. If they try to use a methodology, they will be closer to objectivity and standards, which is an unacceptable feature of social sciences. There is no tendency in social sciences to create hegemony over objects (cf. Cevizci, 2010a).

Discussions on the definition of knowledge commenced with epistemological discourse. Natural sciences detached themselves from philosophy with the emergence of the educational reform in seventieth century. Sociology, political sciences, pedagogy, and psychology declared their autonomy in nineteenth and in the beginning of twentieth century. Meanwhile, philosophy evolved into a field which deals with the problem of knowledge and scientific methodologies, basis of sciences, knowledge and how knowledge is being created are included in epistemology. (cf. Cevizci, 2009).

In conclusion, there is a significant difference between natural, humanities, and social sciences contexts that has an influence on their teaching and learning activities from a micro perspective and educational designs from a macro perspective. Therefore, contextual differences should be regarded whilst the design of any instructional event in order to enhance the quality of education and guide individuals in their personal growth in conjunction with the contexts (contextual characteristics) they preferred to progress.

2.3. An introduction to Education Theories and Models

2.3.1. The German “Didaktik”

“Didaktik” is at the focus of the most school teaching and teacher education in continental Europe and it is almost unknown in English speaking countries. The

contemporary understanding of "Didaktik" is more or less the invention of the 19th century teacher education in Germany. The word "Didaktik" comes from the classical Greek "didaskein" that means teaching, showing something, playing out a drama. Moreover, Plato's "Meno" can be taken as the founding document on "Didaktik" as formation of knowledge (Hopmann, 2007). Wolfgang Ratke and Johan Amos Comenius (1592-1670) found the German "*Didaktik"* at the beginning of the 17th century. In order to enhance "learning", the idea was to develop a "general method" to teach, rather than a "logical method". In this framework, "Didactica Magna" - the best-known practice of "Didaktik"- was developed by Comenius (Kansanen, 1995).

The keywords of "Didaktik" are defined as "curriculum", "theory of instruction", and "research on teaching" in English languages. Indeed, "Didaktik" is being defined as the "theory of instruction" that covers instructional design units as course analysis, planning, implementation, evaluation and development. However, "Didaktik" is more than designing any instructional unit compared to the curriculum design theories of USA; namely, the "Instructional Theory", "Instructional Systems Design", or "Instructional Design (ID)". "Didaktik" is the "theory of teaching and learning" including the "social, cultural and communicational" aspects. In fact, "Didaktik" has a more philosophical standpoint toward education with a more focus on the personal development of the "Individuum". Contrarily, USA based curriculum design theories and models are based on psychological theories of learning where the aim is to transfer the exact "matter" (content) to the learners in order to enable specific kinds of competencies of a predefined context.

The exact meaning of the German word "Didaktik" cannot be understood without reference to another special concept of German pedagogy "Bildung" (Seel, 1999). "Didaktik" is an essential component of "Bildung". However, no definite translations of the concept "Bildung" is present in the English language; but, a few scholars have suggested some definitions like "formation", "education", and "erudition" (Seel, 1999). Moreover, Westbury indicated that "formation" gives the same sense of the meaning that meant by "Bildung" (as cited in Hudson, 2008).

"Bildung" is a verb that essays to form something or some act. It refers to forming the students with all aspects, not only supplying them with the necessary information or knowledge; but also, surrounding them with the social and communicative environment where they can construct and learn aside from instructions for the well-being of their

“Individuum”. Thus, the general view of “Didaktik” is the attempt to supply the mentioned context for “Bildung”.

“Bildung” is conceived of as an (intermediate) actual state in the process of personality development. In this sense “Bildung” may be seen as the subjective state of becoming apart of the culture. (Seel, 1999)”

Human beings are born into a culture / a cultural environment, including a social system. Human personality development is a lifelong process. Thus, it encompasses physical learning processes in interaction (maturation and decline) with other human beings and cultural phenomena such as objects, institutions, ideas, and sciences. This acquisition of cultural objects is conceived as the major part of “Bildung” as a process that constitutes the cluster of learning processes. “Bildung” is conceived as an (intermediate) actual state in the process of personality development. In this sense, it is the subjective state of becoming a part of a culture (Seel, 1999).

According to Peterβen, “Didaktik” is unavoidably significant component of pedagogy that helps scholars to comprehend the useful outcomes of teaching and learning processes. Dolch defined “Didaktik” as the science and education of teaching and learning. He added that it includes all possible forms of teaching and learning on all levels without particularization of any teaching content. Accordingly, Glöckel stated that it is the theory of instruction governing entire instructional subjects on all school levels. Eventually, Klafki defined “Didaktik” as the theory of education and educational categories; where the educational purpose, including criteria, structural coating, and adjustments are questioned. The definitions of “Didaktik” continuously being reformed and systematically rearranged by Klafki. However, Bittner further developed the definition of “Didaktik” and its area of expertise from the perspective of psychological teaching and learning theories (as cited in Stadtfeld, 2004).

“Didaktik” is not only based on psychological principles of learning and systematic production of educational artifacts; but also, pedagogical, communicative, cultural, and social aspects.

“Teacher and learner autonomy” and “order of knowledge and teaching” are essential considerations in creating pedagogically significant instructions in micro (individual development) and macro (development of mankind) environments. Whilst, the aim of “Didaktik” is the provision of the appropriate teaching environment for learners in order to realize their “self” in the context and culture they are apparently living; the autonomy

of both teacher and learner allows teaching and learning independent from any constraints and boundaries. Indeed, the teacher and the learner should be autonomous enough to construct their own “meaning” of the “matter” (content). Therefore, any intervention to autonomy of educational processes will result in systematical education where the requisites of macro environments are sequentially conveyed to the individual learner for the intended learning outcomes; not for personal development and self-realization (cf. Hopmann, 2007).

Didaktik is not fitting to the modern “test environment”. Indeed, the field of assessment is more or less occupied by educational psychology. Thus, empirical research on education and didactical discourse do not have common artifacts (cf. Hopmann, 2007). “Didaktik” is more the “philosophy of teaching” concentrating on each individual learner and their interaction with the “culture” for the personal development and the development of mankind. Contrarily, “Curriculum Design” or “Instructional Design” is concentrating more on institutionalized teaching and learning designs within the framework of psychological learning theories.

Hopmann (2007) underlines that “like ‘Didaktik’ each of these approaches has its own advantages and limits. However, educational psychology would be a good choice if the goal is the training of capabilities as used by competence models” in institutionalized teaching and learning designs. Accordingly, Künzli states that “educational psychology has not dealt with the specifics of the subject matter, or even higher order competencies, beyond basic processes, nor has it a concept of ‘Bildung’ which would allow these competencies to be fitted into a ‘consistently coherent whole’ ” (as cited in Hopmann, 2007). Eventually, Hopmann (2007) argues that “Didaktik” could as well gain something from knowing more about American tradition, as American tradition could profit knowing more about “Didaktik”. The empirical research done within American tradition could challenge quite a few clearly loved “Didaktik” beliefs on how dealing with content actually evolves; hence, “Didaktik” could reread the empirical results of American tradition, which would probably demonstrate the many inconsistencies.

“Tasks of ‘Allgemeine Didaktik’ (‘general didactics’) traditionally focus on problems of content and the procedures of teaching. Teaching which aims to foster, to advance, to support the progress of ‘Bildung’ under the conditions of school as an institutional framework is the topic of ‘Allgemeine Didaktik’ (Seel, 1999).” “Allgemeine Didaktik” is being divided into different categories; as the education evolves according to the socio-

political environment. Indeed, there are several types of “Didaktik” according to the features of several contexts. These are, for example: “lern-/lehr-theoretische Didaktik” (“learning-/teaching-centered didactics”), “Hochschuldidaktik” (“Didaktik and academic development”), “Fachdidaktik” (“subject didactics”), and “Mediendidaktik” (“media didactics”).

2.3.1.1. “Lern-/lehrtheoretische Didaktik”

“Berliner Modell” and “Hamburger Modell” are representative models of “lern-/lehrtheoretische Didaktik” (“teaching-/learning-centered didactics”). Indeed, “Berliner Modell” is based on “lerntheoretische Didaktik” (“learning-centered didactics”) and “Hamburger Modell” is based on “lehrtheoretische Didaktik” (“teaching-centered didactics”).

2.3.1.1.1. “Berliner Modell”

At the end of 1940s, Paul Heimann developed an instructional model named as “Berliner Modell” which was strongly based on learning-centered didactics and the “learning” instead of “Bildung” (Reich, 1981).

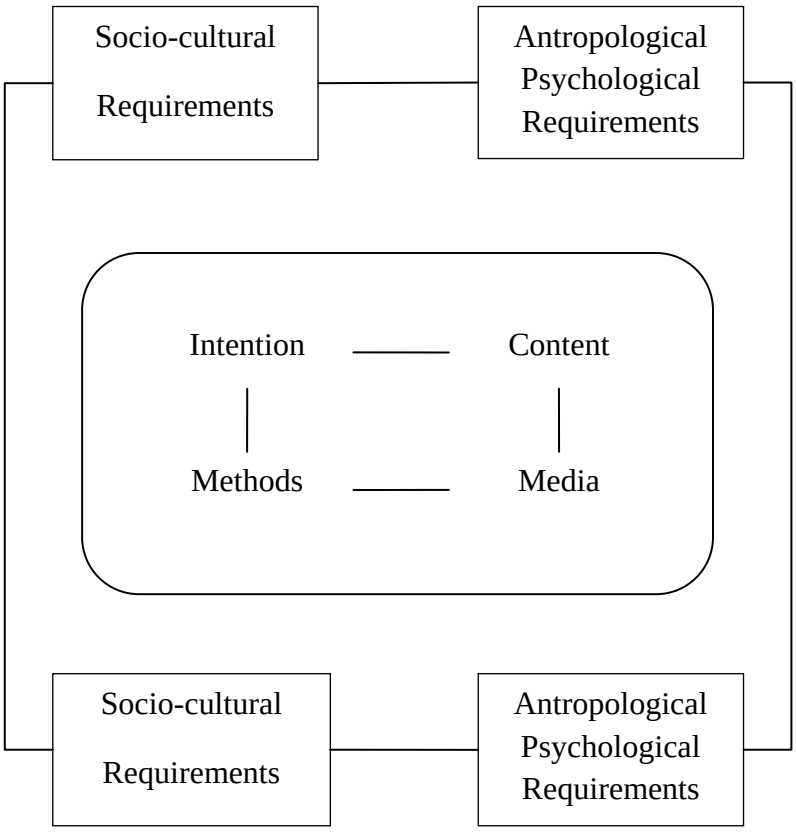

Figure 1. Berliner Modell by Heimann, Otto & Schulz (Riedl, 2004)

In 1965, together with Gunther Otto and Wolgang Schulz; “Berliner Modell” has further developed and put into practice (see Figure 1). “Berliner modell” came into being from the critics on “Bildungstheoretischen Didaktik” (“formation-centered didactics”) which was developed by Klafki in 1985 (as cited in Flender, 2008). “Bildungtheoretischen Didaktik” concentrates on the key concept of education that clearly demonstrates appropriate facts and information. It redirects attention to education of personality, specifically on development of self-determination together with the ability of determination and solidarity (Flender, 2008).

“Berliner modell” was developed to indicate theory implementation onto practice. Indeed, this model acts as a decision model rather than a practice model (cf. Stadfeld, 2004).

2.3.1.1.1.1. Structure analysis and Factor analysis in “Berliner modell”

“Berliner Modell” has two levels of reflection: “structure analysis” and “factor analysis”. The structure analysis of the instruction is dependent on the “decisive moments” (intentionality, content, methods, and media selection), and “evaluation of facts” (anthropological psychological and socio-cultural requirements) (Unger, 2006).

The decision fields of “Berliner Modell” are: the “Intention” refers to pedagogical aims, educational aims, cognitive aims that should be followed by the instructor; the “Content” represents itself in three domains: scientific, technique, or pragmatic; the “Methods” are the practices in which the teaching and learning process can be structured; and the “Media” demonstrates the use of possible instruction technology. Contrarily, the condition fields of “Berliner Modell” are: the “anthropologic and psychological requirements” such as teaching and learning capacity, gender, and age groups; and the “socio-cultural requirements” such as group coordination, teaching plan, school regulations and cooperation forms (cf. Unger, 2006).

Factor analysis is realized as a second level of analysis that is expressed in three classes: standards critic (“Normenkritik”), assessment of facts (“Faktenbeurteilung”), and analysis of forms (“Formenanalyse”). Thus, the lecturers must recognize the ideological and outer pedagogical standards that they have based their decisions; they should review their pedagogical approach whether there were any mistakes or destitute areas; and they should reflect their own teaching style according to their personality (Unger, 2006).

Jank and Meyer (2002) state that “Berliner Modell” conveys a semi-pattern for the acquisition of instruction which is easy to understand. Moreover, it’s politically neutral

and indifferent due to didactics of other fields. However, as a decisions model, it doesn't consign content-related realization of instruction. Indeed, Reich (1981) underlines the fact that the "Berliner Modell" is highly dependent on "learning" than "Bildung"; therefore, it was strongly criticized. Eventually, "Berliner Modell" is a decision-oriented instructional model, rather than a practice-oriented; thus, the decision units are included and the instructional guidance is excluded.

2.3.1.1.2. "Hamburger modell"

The vehement critics on "Berliner Modell" shed light onto the development of "Hamburger Modell" by Wolfgang Schulz in 1962 (cf. Didagma). The "Hamburger Modell" is a modified version of "Berliner Modell" that focuses on teaching-centered didactics. It is rather a "Handlungsmodel" ("practice-oriented model") than a decision-oriented one. Hamburger Modell was presented in 1980 (cf. Didagma).

In "Hamburger modell", levels of structure analysis are combined with the current components of "Berliner modell" (intention, content, methods, media and the requirements). Intention and aims are included in "Instructional Aims and Objectives" ("Unterrichtsziele 'UZ'"), anthropological and psychological requirements are investigated under the framework of "Initial Situation of Learners and Instructors" ("Ausgangslage der Lernenden und Lehrenden 'AL'"), educational methodology and media selection are demonstrated in "Transferring Variables" ("Vermittlungsvariablen 'VV'"), and "Success Control" ("Erfolgskontrolle 'EK'") is installed as the new component (see Figure 2).

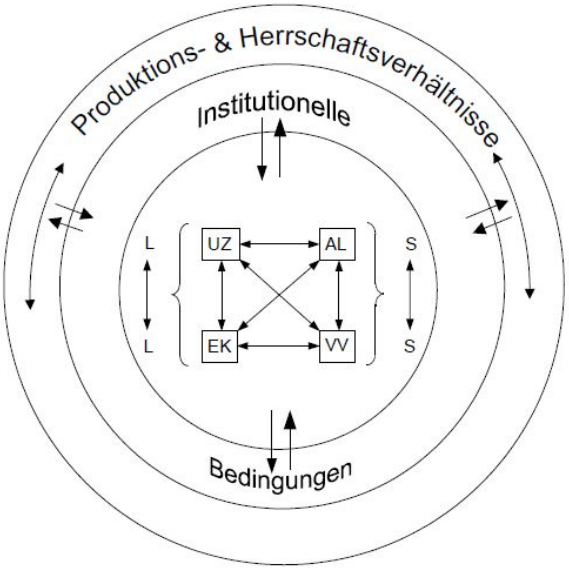

Figure 2. Hamburger Modell by Schulz (Riedl, 2004)

The socio-cultural requirements presented in “Berliner modell” are inverted into “Institutional Conditions” (“Institutionelle Bedingungen”) such as regulations, teaching plan, resources, and more. In terms of institutional conditions Teachers (L) and Students (S) are being observed as partners of instructional planning.

In “Hamburger Modell”, learning is conceptualized in terms of acquiring the needed information for personal emancipation. The division of labor is significantly democratized between the partners of the instruction; thus, this model is being called as an education program that fosters political emancipation (“politisch-emanzipatorischen Bildungsprogramm"). Contrarily to “Berliner Modell”, “Hamburger Modell” embraces the active participation of students in teaching and learning processes. Therefore, this model is being called as an action- or practice-oriented teaching and learning model (“Handlungsmodell”), rather than being decision-oriented one. (cf. Didagma).

Schulz has developed a heuristic matrix consists of two dimensions: behavior descriptive target aspects (“verhaltensbeschreibenden Zielaspekte”) that focuses on “Competence, Autonomy and Solidarity” (“Kompetenz, Autonomie und Solidarität”); and content descriptive themes/experience aspects (“inhaltsbeschreibende Themen/Erfahrungsaspekte“) that are based on “Subject-, Emotional- and Social experience” (“Sach-, Gefühls- und Sozialerfahrung“). All of the variables accentuated in the heuristic matrix of Schulz, interconnect and influence each other. According to Schulz, the improvement of competence to autonomy and later on to solidarity can only be achieved through emancipatory relative teaching (cf. Straka & Macke, 2002).

“Hamburger modell” has four planning levels: perspective planning (“Perspektiveplanung”), outline planning (“Umrissplanung”), process planning (“Prozessplanung”), and correction of planning (“Planungskorrektur”). The framework and framework conditions of the instruction are defined in the first level, perspective planning; the decision of which instructional aims should be achieved and how they should be assessed are issued in the second level, outline planning; each step of instruction including the instructional methods and forms are defined and determined in the third level, process planning; and the correction of planning is conducted if there is an unforeseen planning effect; thus, alternative planning options for each instruction is always required (cf. Didagma).

When “Berliner Modell” and “Hamburger modell” are compared, “Berliner model” which is a decision-oriented model is actually enough for instructors to plan instructions.

However, “Berliner model” is not framing the characteristics of overall process and it is hard to determine about socio-cultural, anthropological and psychological variables. On the other hand, “Hamburger modell” is more an action-/practice-oriented model that is more descriptive than “Berliner modell”. Indeed, “Hamburger modell” enables the partnership of student and instructor throughout the process of instructional planning.

From a micro perspective, “Didaktik” represents the theory of instruction; however, from a macro perspective, “Didaktik” accentuates the theory and practice of an instruction including philosophical, psychological, pedagogical, anthropological, sociological, political and economical aspects. It is not only an approach which is defining how to manage content or choose methods for the intended change in the behavior of learners; but also, it is an approach that observes and fosters the personal development/growth of each individual learner.

2.3.1.2. “Hochschuldidaktik”

“Hochschuldidaktik” denominated as “Higher Education” in Anglo-Saxon languages (Flender, 2008) or “Didaktik and Academic Development” is being discussed since 1970s either intensively or extraneously (Schmidt & Tippelt, 2005) in German speaking countries. However, the permanent ideology of “Hochschuldidaktik” - “the improvement of the quality in higher education, particularly in teaching” remained constant. After the student protests in 1968, a significant number of studies and innovations have expanded the field of “Hochschuldidaktik” expeditiously for the “improvement of university teaching” (“Verbesserung der Lehre”). Between 1980s and 1990s, “Hochschuldidaktik” reiteratively lost attention for a period of time. Nonetheless, vehement activities on “Hochschuldidaktik” are being conducted since 1990s (Schmidt & Tippelt, 2005). Throughout the emerging discussions about “eLearning” in conjunction with the “Bologna process”; “Hochschuldidaktik” is being developed significantly, specifically in the field of technology use in instructions and occupation-oriented competence development (employability).

One of the aims of “Hochschuldidaktik” is to increase the efficiency of learning with professionalized academic teaching. However, in the beginning of 1990s, a paradigm shift has happened from “Erzeugungsdidaktik” (traditional instructor-led education) to Ermöglichungsdidaktik” (constructivist learning) in which the focus has shifted from teaching-centered didactics to learning-centered didactics that enable and support active and participative learning in terms of constructivist learning theories.

"Ermöglichungdidaktik" is a facilitative turn in the historical evolution of adult learning supporting the fact that the individual learning processes can neither be directed nor be internalized by an instructor. The internalization of learning gained much more importance (cf. Arnold & Lermen, 2003). Brendel et al. indicate that the role of instructors has further developed and associated with the fields of moderation, supervision, and assistance (cf. Hochschuldidaktik; Dany, 2006). Hence, this shift is being reflected by "Hochschuldidaktik" where constructivist learning theories are widely applied in conjunction with the adult learning principles.

"Hochschuldidaktik" is not limited to the design of a specific unit/aspect of an instruction; it is also the iterative preparation, follow-up, and evaluation of any instructional offering. Thenceforth, the insurance of a permanent quality development process in the field of "Hochschuldidaktik" is guaranteed (Schmidt & Tippelt, 2005).

"'Hochschuldidaktik' brings together many subjects. It focuses on the teaching and learning processes in higher education from an academic and from a vocational perspective such as (Dany, 2006)":

- Individual and collective student learning process,
- interactions between academic teachers and students,
- the preparation of academic teachers for university teaching,
- influences on student motivation and student behavior,
- testing and grading.

Metz-Goeckel calls this the micro-perspective of 'Hochschuldidaktik' (as cited in Dany, 2006). Moreover, he identified the macro-perspective of "Hochschuldidaktik" and indicated that it encloses aspects that are related to higher education policy (as cited in Dany, 2006):

- Analyses of structural or institutional conditions,
- evaluation of courses,
- transition to the job market.

Wildt, Encke, Bluemcke outlined that 'Hochschuldidaktik' is often related to Academic Staff Development that involves (as cited in Dany, 2006):

- Staff recruitment
- Staff qualification
- Staff assessment
- Evaluation of staff development efforts

The convergence of micro and macro perpectives of "Hochschuldidaktik" institutes an area for "Professional Development of Teachers in Higher Education" (cf. Dany, 2006). At a first glance, both perpectives seem to have nothing in common; however, both establishes the field of "Hochschuldidaktik". It is not only an instructional approach for higher education teaching but also, it represents a holistic understanding of higher education. Indeed, the enhancement of higher education have a significant impact on personal, organizational and societal development. Therefore, the quality assurance and development of higher education is the main aim of "Hochschuldidaktik".

2.3.1.2.1. "Fachbezogener und fachübergreifender Hochschuldidaktik"

The relationship between "Hochschuldidaktik" and "Fachdidaktik" ("subject didactics") established a new area of theory and practice named "Fachbezogene und Fachübergreifende Hochschuldidaktik" ("subject-oriented and interdisciplinary teaching and learning on higher education" (Wildt, 2011; Jahnke & Wildt, 2011).

"Fachdidaktik" is the didactics of specialized subject fields such as geography, physics, chemistry, and mathematics. Indeed, the background of "Fachdidaktik" is the combination of "Allgemeinen Didaktik" ("general didactics") with "Fachkulturen" ("subject cultures"). "Fachdidaktik" is an approach between the school ("Schule") and the science ("Wissenschaft"). Thus, it has a central role as "mediator of processes" ("Vermittlungprozesse") in terms of analysis, reflection and design. However, those specialized subject fields are differentiated as separate scientific areas in higher education that focuses on the learning processes within the context of subject specific knowledge. (cf. Wildt, 2011).

"Hochschuldidaktik" is a very general approach on higher education didactics with no in-depth argumentation of "fachbezogene und fachübergriefende" ("subject-oriented and interdisciplinary") motives. Indeed, the "Fachkulturen" ("subject cultures") have distinguishing characteristics when their "Fachdidaktiken" ("subject didactics") are

compared and contrasted with each other. Moreover, they are neither interconnected nor available for interdisciplinary discourse. Therefore, it is important to insert scientific research-generated knowledge into the teaching of the specific subjects; and communicate the results with other fields of studies for an interdisciplinary discourse on “Fachdidaktik” (“subject didactics”) in the framework of “Hochschuldidaktik” (cf. Wildt, 2011; Jahnke & Wildt, 2011).

“Fachbezogene und fachübergreifende Hochschuldidaktik” brings out a new dimension for “Hochschuldidaktik”. Thus, Wildt (2011) indicates that the cooperation between subject-matter fields of studies in higher education is significantly required to realize an effective interdisciplinary application of “Hochschuldidaktik”. To what extend the subject-oriented and interdisciplinary teaching and learning on higher education could combine with each other and could profit from each other is the main question of “fachbezogene und fachübergreifende Hochschuldidaktik” (cf. Hochschuldidaktik). Thus, the three folded competency orientation approach offers the possibility to comprehend the academic mission of higher education (“Hochschulbildung”) more in detail (Öchsner & Reiber, 2010):

- ***Subject-oriented competencies*** are derived from the scientific discipline’s subject specific knowledge, skills, abilities, and setting.
- ***Society-relevant competencies*** contain ethical judgment skills, and the readiness to take the responsibility of the own behavior; skills that develop a solid and grounded opinion on recent social issues, and the representation of the own values.
- ***Career-oriented competencies*** acquired a meaning through the introduction of “Bologna-Process”. Each study program must identify in which means they qualify individuals for a particular profession under the keyword of “Employability”. These competences are not identical with interdisciplinary teaching and learning, rather they are characteristics of a certain discipline or profession.

In the systemic framework of these three fields of competencies, “fachbezogene Hochschuldidaktik” (“subject-oriented higher education didactics”) situates itself significantly in the fields of subject-oriented and career-oriented competencies. Moreover, “fachübergreifende Hochschuldidaktik” (“interdisciplinary teaching and learning on higher education”) strongly situates itself in the fields of society-relevant

competencies and career-oriented competencies. However, this is an ideal but not a dogmatic classification (Öchsner & Reiber, 2010). Synergies could arise throughout an enhanced cooperation between "fachbezogener und fachübergreifender Hochschuldidaktik". Indeed, "fachbezogene Hochschuldidaktik" ("subject-oriented higher education didactics") could profit from "Hochschuldidaktik" with the assistance of key competencies of students (cf. Hochschuldidaktik). Wildt pointed out that these extra-functional competencies are simultaneously conceptualized as the "missing link" between the "fachbezogener und fachübergreifender Hochschuldidaktik" (as cited in Öchsner & Reiber, 2010).

2.3.1.2.2. "Fachbezogener und fachübergreifender Hochschuldidaktik" and eLearning

Teaching and learning culture has changed significantly with the convergence of digital media to higher education institutions. The use of (digital) media and (semi-) virtualized scenarios are only partial aspects among many others in the framework of "Hochschuldidaktik" (cf. Hocschuldidaktik). In order to conceptualize the relationship between "Hochschuldidaktik" and "eLearning", Bremer (2005) asked where exactly "Hochschuldidaktik" is a field of activity in the framework of internet-based teaching and learning.

Initial applications of eLearning in higher education were focused on technologies rather than instructional capabilities of those technologies. This problem of being technology-centeredness created awareness about the importance of instructional design aspects. Thus, the instructions begun to be planned early enough to design pedagogically effective and detailed teaching and learning processes; the spontaneous adaptation of eLearning is no longer possible alike in the beginning. Eventually, the initial technology-oriented training opportunities are progressively formed by the grounding instructional design approaches on internet-based teaching and learning processes within the framework of "Hochschuldidaktik" (cf. Bremer, 2005).

The question of which media should be adapted is in the focus of "Mediendidaktik" ("Media Didactics"). It is a sub-discipline of "Didaktik" and its main focus is on the design, implementation, and impact of media and media systems in information and learning processes. "Mediendidaktik" is being emphasized since 1950s and 1960s and it is influenced from USA based theory of "Instructional Technology (IT)" that is recently being offered almost by all universities in USA as a discipline. The terminology of

"instructional technology" is evolved into "Instructional Systems Design", likewise "Instructional Design (ID)" (cf. Issing, 1994).

The article on "Kybernetische Grundlagen der Pedagogik" ("Cybernetic Principles of Pedagogy") by Frank led to the formulation of "systems theoretical instructional models" developed by König and Riedel. Furthermore, Peters identified the characteristics of the IT referring to that times as "instrumentally rational objective setting"; which means the efficient achievement of operationally identified learning objectives via the development of optimal instructional designs. In the middle of 1970s, Rumpf developed a vehement argument of "Kritischen, emanzipatorischen Medienpädagogik" ("critical emancipatory media pedagogy") against such instrumentally rational objective setting in Germany. According to Habermas, those arguments were based on the "technology" critics of Frankfurt School; against the instructional technologies "control" on teaching and learning processes. Eventually, this has contributed to the development of practice-oriented concepts in the framework of "Medienpädagogik" ("media pedagogy") (as cited in Issing, 1994). Therefore, instructional technology concepts in Germany are further developed only in the areas of computer-supported courses alike, Computer-Based-Training (CBT); and they are being successfully practiced until today (cf. Issing, 1994).

"Mediendidaktik" has been trying to fit new media environments into teaching and learning practices in a pedagogically significant approach. New multimedia applications gain the interest of "Mediendidaktik", undoubtedly. New methods of multimedia technologies for simulations and interaction and the new state of knowledge in the field of cognitive psychology augmented the velocity of new pedagogical design approaches as "Multimediadidaktik" ("multimedia didactics") in 1990s (cf. Issing, 1994).

A shift has happened from "*Didaktik meets Technik*[5]" to "*Didaktik drives Technik*". In the new form of understanding, technological decisions are following the pedagogical scaffold ("didaktische Grundgerüst") of an instructional event. Indeed, not only the decisions about the appropriate media, but also the complete arrangement of teaching and learning processes including the interplay of online phases with physical ones; raise of the questions about the curricular anchoring and the framework are being widely questioned in the emerging field of "Hochschuldidaktik des eLearning" ("eLearning in higher

[5] Technology

education"). Accordingly, "Hochschuldidaktik" planning aspects involve instructional design units such as objective setting, content, target group, and structure. "Mediendidaktik" planning aspects include the media selection (features) and planning. Eventually, "Mediengestaltung" ("media design") planning aspects are the design of the learning environment, surface, interaction, ergonomics and navigation (cf. Bremer, 2005).

"Hochschuldidaktik des eLearning" is an overall terminology to indicate the use of eLearning in higher educational contexts. The macro aim is to improve the quality of higher education with the emerging technologies in practice. Indeed, the micro aim is to enhance and qualify the professionals of the academia. When the "Hochschuldidaktik des eLearning" is elaborated into "Fachbezogene Hochschuldidaktik" ("subject-oriented higher education"), the outcomes would be variable due to "Fachkulturen" ("subject cultures"). Therefore, the development of a "Fachübergreifende" ("interdisciplinary") approach of "Hochschuldidaktik des eLearning" with the cooperation of distinct "Fachkulturen" would scaffold a concrete structure of interdisciplinary "Hochschuldidaktik des eLearning" or "fachbezogene und fachübergreifende Hochschuldidaktik des eLearning" ("subject-oriented and interdisciplinary teaching and learning with eLearning in higher education"). Moreover, this would expose the convergence and divergence of "Fachkulturen" ("subject cultures") with regards to their determined application of technology-enhanced learning environments that the other "Fachkulturen" could profit from. In sum, both macro and micro aims of "Hochschuldidaktik des eLearning" would be accomplished.

2.3.2. Theories and Models of Instructional Design

2.3.2.1. The Theory of Instruction

The instruction is the systematic development of a course design in order to reach intended and expected learning outcomes in the framework of instructional design processes. The history of instructional design theory begins with the "instructional theory". After the Second World War (WWII), the United States (US) scholars began to question and develop ideas about, "How should the instructions be conducted in order to get more efficient and effective human performances or outcomes?" In 1950s, the audiovisual technologies were integrated into the instructions and the psychological learning theory "behaviorism" was widely applied as the main ideology behind teaching and learning with educational technologies in the US. Meanwhile, education philosophers were the dominant decision makers about instructional theory and their discourses were

commonly about “How should the instructions be conducted; which instructional content should be chosen; what kind of goals or objectives, and teaching and learning methods should be selected; which social and instructional context with what kind of administrative constraints should be considered?”

B. F. Skinner developed programmed learning with computers and attached behaviorist instructional theories to these prior machines of instructional technology. Throughout the 1960s, instructional research continued to be based on behaviorist epistemology. Programmed instruction had been the essential feature in the design of an instruction in the 1960s. Toward the end of the decade, the interest on such an instructional event was declined. Research findings revealed that the programmed materials were often no more effective than conventional materials and students often found the materials to be uninteresting. Research in the early 1970s revealed findings that strongly criticize previous ideas about the role of behavioral principles such as feedback, rewards, sequencing, and definition of objectives played in the learning process. Additional contributions are proposed in contrast to the behavioral paradigm; scholars begun to work on cognitive paradigms (cf. Tennyson, 2010).

Accordingly, scholars such as Merill, Reigeluth, and Tannysee developed more flexible teaching and learning environments for the aim of education where the inner mental processes of students are mainly taken into consideration during teaching and learning activities. A shift was successfully made from teacher-centered instruction to a more learner-centered one, where external and internal factors of learning are considered (cf. Tennyson, 2010).

Tennyson (2010) indicated that “the result was the rapid proliferation of instructional systems design models and instructional design theories covering a wide range of perspectives as psychologists and educators pursued their individual ideas in a generally competitive environment. Instructional design researchers in the 1970s tried to establish a more complete picture of the conditions of learning. Theories sought to incorporate individual differences into the instructional design process, leading to the extensive use of pretests and formative evaluation procedures.” Indeed, he added that “Cognitivist researchers used information analysis to identify the levels of learning that distinguish a novice from an expert in a subject-matter domain.” These were content, task, problem-solving, situation and context analysis including the cultural artifacts. Furthermore, a considerable amount of research work, describing the complex structure and the

sequencing of cognitive processes (attention and memory) was conducted; and the significance of perception in the performance of individuals who are highly skilled in specific domains was recognized (Tennyson, 2010) However, Breuer & Kummer underlined that a grant portion of task and content analysis procedures were developed before interactive media and resulted in passive, rather than interactive instruction. As a result, these task and content analysis procedures are not well suited to highly interactive instructional situations, such as computer-based simulations (as cited in Tennyson, 2010).

In the late 1990s, the interaction of learners with media and learning environments gained interest, and continued alike during the first decade of the 21st century. Constructivism came into being that supports active, self-regulated, goal-directed, and reflective learner performances where the learners are able to construct their personal knowledge through discovery, experience and exploration in a responsive learning environment. There are two main approaches which are crucial to instructional theory: structured approach and self-regulated approach. The structured approach emphasizes learning procedural knowledge through extensive practice with problem-solving. It is a teacher-centered approach where learners follow exact path of sequences and tasks for the efficient performance of a well-defined cognitive skill. In addition, practice is an important component of the structured approach. The self-regulated approach is the learners' self-control of instructional strategies by accomplishing a complete, non-decomposed task. The teacher provides modeling of the meta-cognitive strategies necessary for beginning the task, and when problems are encountered, assistance is provided by the teacher or the group. Problem-solving, project work and group work is important components of this approach, it takes into consideration the social genesis of learning in which the learner is characterized as being motivated to seek explanations through exploration. Contrarily, to the behaviorist view of learning which is shaped by the environment, instructional design researchers in 2000s are investigating the ways that learners can actively shape the environment to facilitate learning (Tennyson, 2010). The main idea is that learners not only demand for "information" and memorize them in order to learn something, but also they self-reflect the instructional content via problem-solving, task-analysis, role-playing, or many other approaches that are linked with the innovative instructional technologies; where they can actively construct their knowledge and self-manage their personal learning environment.

2.3.2.2. Learning Theories

Learning theories seek to understand the human behaviors in learning processes. Likewise, they are the comprehension of how the nature of instruction should look like in order to enable learning and comprehend how it proceeds. The technological innovations' introduction to education has highly influenced the mode of learning. Thus, the learning theories are being developed in conjunction with the technological developments in socio-political domains.

"Designing effective instruction goes beyond systematically executing various steps within an instructional design model. Among a host of considerations, effective instructional design should take into consideration the theoretical bases in which it is grounded. This is not to say that learning theory offers instructional designers answers to design problems but instead, offers clarity, direction and focus throughout the instructional design process. (McLeod, 2003)"

There are three major learning theories that dominate the field of instructional design, these are: behaviorism, cognitivism, and constructivism. However, the invention of new technologies led to the emerge of divergent learning theories such as "social constructivism" and "connectivism".

The initial trials on how individuals learn were conceptualized by "behaviorism". McLeod (2003) identifies behaviorism as "an orientation to learning emphasizing methodically time-controlled events and constructed environmental conditions intended to bring about particular behavioral responses. Behaviorism is based on the stimulus-response approach and reinforcement.

Behaviorism monitors the "observable behavior"; rather than, internal thought processes. Indeed, a change in behavior is accepted as the signal of learning. Moreover, behavior is structured by the surrounding environment and the content of what should be learned is not the preference of the learner, instead it is determined by the elements in the environment. Eventually, the central approaches that define the learning process are the principles of contiguity and reinforcement (cf. McLeod, 2003).

B. F. Skinner's study underlines that there are similarities between animals and human beings in learning complex behaviors in a short period of time (as cited in Issing, 2009). The Stimulus-response actions and reinforcement approaches (operant conditioning) are at the core of behaviorism. In case, a stimulus or a series of stimuli is given to the learners looking forward for their sensory processing; then, a response/action is anticipated.

Afterwards, in conjunction with the expected behavior, the learners are either positively (rewarded) or negatively (punished) reinforced. In behaviorism, the learner is supposed to be a programmed machine that performs give and take tasks; thus, the mind is accepted as a “copy machine”. The information processing and the construction capabilities of human mind are discriminated. Operant conditioning is not only used in animal training, but also widely practiced in the learning activities of human beings such as in sports education, vocational training, handling of machines, and training of communication behaviors (cf. Issing, 2009). Indeed, operant conditioning is integrated into the programmed instruction in professional schools where Pressey has invented the “learning and testing machine” for vocabulary learning (as cited in Issing, 2009). The study of Crowder demonstrated that more linear learning programs were invented including multiple choice datasets of responses that could be adjusted according to learner characteristics (as cited in Issing, 2009). The presentation of learning programs continue to further develop, an example is the use of filmstrips on the screens of electromechanical learning machines.

The studies of Issing and Cronbach revealed that another approach for programmed instruction is further developed with the emergence of “computer” and the “computer-supported teaching” in 1960s and 1970s; namely the “Aptitude-Treatment-Interaction” (as cited in Issing, 2009). It highlights the importance of individual differences diagnosis such as: prior knowledge, interests, and skills of learners. After the invention of computers, the computer supported teaching and learning has significantly augmented and the systematical design of instructions and programmed learning gained attention and interest to a greater extend (cf. Issing, 2009).

Behaviorism was the predominant learning theory for the first half of the twentieth century and it only focused on studying observable behaviors. Information processes or other unobservable phenomena were not considered. Thence, the cognitive school of thought attempt to discover new dimensions to optimize teaching and learning activities.

Cognitive learning theory emphasizes the importance of internal active mental processing of human mind that increases the mental capacity and skills of humans to learn more effectively. Blanton accentuates that in order to compare and process new information for learning, an actual state of knowledge is required, likewise, a “schema”. The schema is activated as soon as the new information chunks are interrelated and linked to it. Thus, new knowledge patterns/structures are established and ready for further development (learning) (cf. McLeod, 2003).

The objective of the cognitive approach is to comprehend the information processing of the human mind. The human mind is observed as a ‘computer’ alike a ‘black box’. Task analysis and learner analysis patterns of instructional design theories and models are influenced from cognitive understanding of learning. McLeod (2003) highlights that “cognitivists believe learners develop learning through receiving, storing and retrieving information. With this notion, it is imperative for instructional designers to thoroughly analyze and consider the appropriate tasks needed in order for learners to effectively and efficiently process the information received. Likewise, designers must consider the relevant learner characteristics that will promote or impede the cognitive processing of information.”

Cognitivism has a learner-focused design process, than behaviorism which is significantly environment-focused. This has changed the focus of instructional design theories and models. Cognitive learning theories have more long-term impact on learners. McLeod (2003) underlined the work of cognitivst scholar Ausubel and his argument as “learning is meaningful only when it can be related to concepts that already exist in a person’s cognitive structure. Rote learning (behaviorism-based), on the other hand, does not become linked to a person’s cognitive structure and hence is easily forgotten” to explain the differences between behaviorist and cognitivist learning theories with reference to the study of Merriam and Caffarella. However, McLoed (2003) identifies that “the major weakness of cognitivism lies in its strength. Whereas schemas

help to make learning more meaningful, a learner is markedly at a disadvantage whenever relevant schemas or prerequisite knowledge do not exist. To account for this, a designer will need to ensure that the instruction is appropriate for all skill levels and experiences. Designing such instruction could be costly and time-consuming.” Therefore, learner prerequisites is widely integrated into instructional theories and models. Eventually, cognitivism widely connotated with instructional design models until the discussions on the new phenomena of learning theories; “constructivism”.

Constructivism has a number of divergent perspectives and each perspective has a common assumption that individuals actively construct knowledge based on their experience. Therefore, knowledge cannot be transferred from an individual to another; but learners must construct their own knowledge individually. Experiential learning, self-directed learning, and reflective learning represents some examples of constructivist

epistemology; and the focus is always on the learner's construction of knowledge within a social context (cf. McLoed, 2003).

"Boethel and Dimock outline that constructivist-learning theory emphasizes six assumptions of constructivism (as cited in McLoed, 2003):

- Learning is an adaptive activity.
- Learning is situated in the context where it occurs.
- Knowledge is constructed by the learner.
- Experience and prior understanding play a role in learning.
- There is resistance to change.
- Social interaction plays a role in learning."

There are four constructivist approaches (Issing, 2009): radical constructivism, psychological or individual constructivism, social constructivism, and moderate constructivism. Radical constructivism is a terminology used in philosophical discourses and mentioned broadly in the study of Glaserfeld; which indicates that the knowledge can only be gained personally, not by an instruction. Secondly, psychological or individual constructivism is widely issued in the study of Piaget where he outlines cognitive structures as highly individualized representations, aroused by individual experiences with the environment (as cited in Issing, 2009). Moreover, the third approach defined by Wigotsky is the social constructivism; in which social interactions and cultural context has an impact on the personal development and learning models (as cited in Issing, 2009). Eventually, the last approach is the moderate constructivism which is mentioned in the studies of Mandl, Gruber & Renkly; they criticize the given emphasis on behaviorist and cognitivist learning theories; and they agree upon the construction of knowledge through self-experience from reality-based situations that are authentic; not through an instruction carried by instructors (as cited in Issing, 2009).

Darke, Shanks, & Broadbent summarize the learning theories as "behaviorism offers laws to govern behavior that can inform a teacher's manipulation of the learning environment (including texts and activities) to promote learning, for example, using Gagne's nine events of instruction. This is an objective approach, where knowledge is perceived as facts that can be transmitted from teacher to student. Cognitivism opens up the black box of the mind, regarding the learner as an information processor. Social constructivism is an interpretive approach based on phenomenology, which has an 'ontology in which reality is subjective, a social product constructed and interpreted by

humans as social actors according to their beliefs and value systems' (as cited in Bell, 2011)." "Hence social constructivism places a greater emphasis on the importance of social interactions in affecting the individual's generation of knowledge or facts about the world. The whole is greater than the sum of the parts, and knowledge becomes a cultural artifact, associated with groups within a specific context (Bell, 2011)."

Siemens outlines limitations of major learning theories and indicates that there is a common belief of them as "learning occurs inside a person". Even, the social constructivist learning which is enabled by socially interactions with the environment do not prove that learning is enabled outside of individuals. Moreover, Siemens underlines that in a networked world, the acquisition of "worth" is an important manner in exploring information. Thus, the need to evaluate the worthiness of learning something is a meta-skill that is applied before learning itself begins. This is rather an intrinsic view on acquiring information than extrinsic one. In case, there is a growing giant pool of information available for each individual where they have to synthesize and recognize each; in order to contruct their own personlized knowledge within the personal learning environments (cf. Siemens, 2005).

A significant number of questions are raised about the relationship between the emerging technologies and the established learning theories. The revision and evolution of those theories is inevitable as conditions change. However, Siemens (2005) accentuates that "the underlying conditions have altered so significantly, that further modification is no longer sensible. An entirely new approach is needed." (cf. Siemens, 2005). Therefore, the invention and practice of "Massive Open Online Courses (MOOCs)" led to the construction of a new learning theory called "Connectivism". Downes and Siemens have brought together their ideas on the use of networks in understanding learning on many levels in a theory called connectivism (Bell, 2011) as an alternative theory of learning (Siemens, 2005).

Connectivism is the learning theory of the digital age (Bell, 2011). Siemens (2005) characterizes connectivism as: "the integration of principles explored by chaos, network, and complexity and self-organization theories. Learning is a process that occurs within nebulous environments of shifting core elements – not entirely under the control of the individual. Learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or a database), is focused on connecting specialized information sets, and the connections that enable us to learn more are more important than our current

state of knowing. Connectivism is driven by the understanding that decisions are based on rapidly altering foundations. New information is continually being acquired. The ability to draw distinctions between important and unimportant information is vital. The ability to recognize when new information alters the landscape based on decisions made yesterday is also critical."

This type of learning event involves active participation and interaction of individuals with resources and other individuals rather than the one-way classical view on transfer of knowledge. Connectivism is an organization of learning whereby the "knowledge" is disseminated across plural platforms on web and acquired via the interaction and engagement of individuals with each other (cf. Kop, 2011).

Principles of connectivism are (Siemens, 2005):

- Learning and knowledge rests in diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known
- Nurturing and maintaining connections is needed to facilitate continual learning.
- Ability to see connections between fields, ideas, and concepts is a core skill.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.
- Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision.

In connectivism, learning is enabled through four major types of activity (see Table 5). Siemens (2005) highlights that "the starting point of connectivism is the individual. Personal knowledge is comprised of a network, which feeds into organizations and institutions, which in turn feed back into the network, and then continue to provide

learning to individual. This cycle of knowledge development (personal to network to organization) allows learners to remain current in their field through the connections they have formed."

Connectivism is a learning theory of informal rather than formal learning environments; where self-directed and self-regulated learning is at the fore. Moreover, building a personal learning environment with the opportunities provided by web applications that enhances the networking of individuals with divergent levels of expertise is the essential feature of connectivist learning environments. Thus, the eligibility and the extensive practice of connectivism in terms of formal learning environments are still being discussed. However, the emerging learning environment "Massive Open Online Courses (MOOCs)" applies connectivist approaches successfully within the framework of connectivist practices of MOOCs, namely, the cMOOCs.

Table 5

Four major types of activity (Kop, 2011)

Types of Activity	Description
Aggregation	the access to wide variety of resources with all possible interaction opportunities
Relation	the linking of new information with the previous knowledge
Creation	the creation and realization of self-reflection by means of any web application such as blog posts, wiki entries, youtube videos, social bookmarking, interaction on Moodle, SecondLife meeting…
Sharing	the sharing of the personal work of a learner with others on the network for further improvements.

The practice of MOOCs is divided into two categories: xMOOCs and cMOOCs. xMOOCs are the recorded videos of available classes in popular higher education institutions that are uploaded to certain kind of a unique platform for open access (edX). The courses are free and accessible by any individual worldwide. Indeed, there is no involvement of learners, no interaction, no reflection of what is being learned, and even no accreditation. A paradigm shift has happened with the introduction of the open online course by George Siemens and Stephen Downes "Connectivism and the Connected Knowledge". The scaffold of MOOCs met with another emerging dimension that

significantly engages learners in a highly interactive and networked personal learning environment that supports learner autonomy and self-reflection.

The convergence of formal and informal learning environments is inevitable in digital age. Even, a paradigm shift happened in formal education with the emerging technologies in practice. The learner profiles (digital natives) changed in conjunction with those technologies. Thus, the border between the formal and informal learning is being dissolved, specifically, in higher education. Therefore, connectivism could be seen as an opportunity to engage new learners who are digital natives with the formal learning environments; giving them the chance to manage their personal learning environment with divergent possibilities of being connected; in which the pedagogical aim of education (personal and societal development) could be achieved.

2.3.2.3. An Overview of Systematic Instructional Design Models

Instructional Design (ID) models are divided into two groups: ID^1 and ID^2 models. ID^1 models are based on behaviorist principles of learning. Contrarily, ID^2 models are based on cognitivist principles of learning. ID^2 models are enhancements of the prescriptive ID^1 models giving more importance to learner's inner mental activities. A standard ID model has not been developed. However, the ID scholars recommend the use of constructivist and post-modernist learning theories. Their assumption underlines that a shift could happen successfully and could shape the future of instructions when the contemporary learning theories (being developed together with the emerging technologies) are broadly practiced.

2.3.2.3.1. ADDIE Model

"The 'ADDIE Model' is a colloquial term used to describe a systematic approach to instructional development. The term is virtually synonymous with instructional systems development (ISD). It is not a specific, fully elaborated model in its own right, but rather an umbrella term that refers to a family of models that share a common underlying structure. The basic engine of ISD models is the systems approach: viewing human organizations and activities as systems in which inputs, outputs, processes (throughputs), and feedback and control elements are the salient features. Advocates claim that the process of designing instruction can be carried out more efficiently and effectively if the steps are followed in a logical order so that the output of each step provides the input for the next (Molenda, 2003)."

In 1975, Florida State University has developed the ADDIE model. Afterwards, it is further developed by personal and organizational bodies according to their needs and technologies (cf. ADDIE model). The ADDIE model is applicable to any kind of learning solution. Indeed, it acts as the fundamental model for further ID models. It consists of "Analysis, Design, Development, Implementation and Evaluation (formative & summative)" action steps. It is systematic; thus it recommends using the decisions made in each step as the input for the next step (see Figure 3).

According to the *ADDIE model*:

Analysis: An overall analysis of learner, content, and task is conducted to be able to identify and clarify the interconnections.

Design: Systematic planning of instructional strategies to obtain learning outcomes in different domains: cognitive, affective and psychomotor.

These strategies are categorized into core, complementary, and interactive information zones. In detail, "core information zones" are used for the presentation of key instructional content; "complementary information zones" are used to provide learner practice and elaboration; "interactive feedback zones" are used to provide learner assessment and remedial feedback (Lohr, 1998).

Development: Practice of instructional strategies.

Implementation: Covers the distribution of the course curriculum, learning outcomes, method of delivery, and procedures to the learners.

Evaluation: Learners are assessed to determine to what extent they mastered the objectives specified at the beginning, and revisions are made as needed. Two types of evaluation are presently used: formative and summative evaluation. Formative evaluation is conducted sequentially; for example, in testing the effectiveness of the instructional method on the students or a pop-up quiz. Summative evaluation is the final evaluation; for example, the final examinations of learners and feedback (cf. Molenda, Reigeluth, & Nelson, 2003).

"The output of the analysis phase is a set of performance deficiencies (such as errors being made by learners), which can be broken down to determine what ought to be taught. This output is converted into statements of performance objectives. In the design phase, the content and objectives are examined to decide on appropriate sequencing, media, and methods, which specifications comprise the blueprint for the instruction. The blueprint created in the design phase is converted into instructional materials and

procedures in the development phase. The materials and procedures are used by actual learners in the implementation phase. In the Evaluation phase, the learners and the instructional system are probed to decide whether revisions are necessary or not, in which case the process would be repeated with the next version of instruction (Molenda, 2003)."

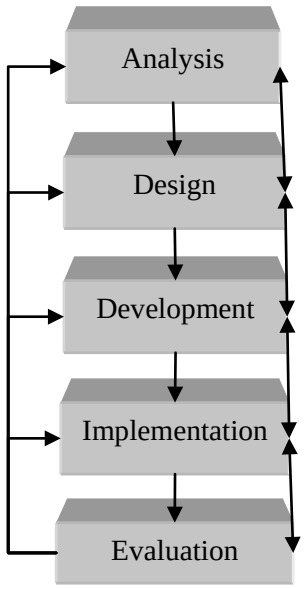

Figure 3. An instructional design model based on ADDIE model (Molenda, 2003)

ADDIE model is being covered in terms of Instructional Systems Design (ISD) models in textbooks, because of its systematic nature. Corporate trainers and ID specialists seem to apply ADDIE model more broadly than formal education. The reason might be the appropriateness of ADDIE model for non-complex training session where learners or trainees are not obliged to construct knowledge and discover new dimensions attached to it. ADDIE model is an appropriate instructional design model, if the aim is only to learn basics, principles, concepts, theories, or small practical experiences about how to operate something. However, in secondary and higher education, this model is insufficient and inefficient enough to offset the needs of the learners and even instructors.

2.3.2.3.2. Gagné's Theory of Instruction

Theory of instruction was developed by Robert M. Gagné and it is made up of three major components: "A Taxonomy of Learning Outcomes", "Conditions of Learning", and "Nine Events of Instruction".

Gagné outlines the importance of psychological learning principles in designing effective instructions with technologies in "A Taxonomy of Learning Outcomes". Gagné's theory of instruction is highly influenced from behaviorism; thus, the observable behavior of learners at the end of any instruction is considerably marked as a sign for

"understanding/comprehension" (Driscoll, 2000). Indeed, Gagné has accentuated three kinds of observable behavior as cognitive, motor, and affective. Benjamin Bloom, a contemporary of Gagné's, was among the first to accept the notion that humans' learned capabilities comprise three major domains: cognitive, affective, and psychomotor. He proposed taxonomy of levels within the cognitive domain that is still in wide use today. Besides, extending the work of Bloom; Krathwohl, Bloom & Masia developed taxonomy of outcomes within the affective domain. Eventually, taxonomy within the psychomotor domain was developed by Simpson. However, Gagné was the first to propose an integrated taxonomy of learning outcomes that involves all three major domains (as cited in Driscoll, 2000).

Gagné summarized the learning outcomes into five major categories: verbal information, intellectual skills, cognitive strategies, attitudes, and motor skills. The verbal information is in cognitive domain for "declarative knowledge" that is the organized knowledge acquired through formal schooling, books, television, and many other means by learners. Gagné's view is similar to the views of Ausubel, information-processing theorists, and schema theorists in accepting that learners organize their knowledge in themes or schemata which later on will help them in solving problems via the recall and acquisition of necessary information. Indeed, the intellectual skills are the equivalent of procedural knowledge in cognitive domain and divided into five, hierarchically ordered subcategories: discriminations, concrete concepts, defined concepts, rules and higher-order rules. This sub-categorization of intellectual skills derived from his work with "learning hierarchies". Moreover, cognitive strategies involve numerous ways by which learners guide their own learning, thinking, acting, and feeling (Driscoll, 2000). Gagné indicated cognitive strategies as executive control functions of information processing; namely, the conditional knowledge. Attitudes are considered to be in affective domain, rather than cognitive. Gagné identified attitudes as acquired internal states that influence the choice of personal action toward some class of things, persons, or events. Finally, motor skills are in the psychomotor domain and defined by Gagné as the precise, smooth, and accurately timed execution of performances involving the use of muscles (as cited in Driscoll, 2000). These are performances related with sports and all continuous in nature (Driscoll, 2000).

Gagné, Briggs, and Wager identified conditions for learning as the planning of learning conditions in instruction categorized in conjunction with the type of outcome they represent (as cited in Driscoll, 2000) (see Table 6).

Table 6

A Summary of External Conditions that can Critically Influence Learning of the Five Major Varieties Of Learning Outcomes (Driscoll, 2000)

Type of Learning Outcome	Critical Learning Conditions
Verbal Information	1. Draw attention to distinctive features by variations in print or speech. 2. Present information so that it can be made into chunks. 3. Provide a meaningful context for effective encoding of information. 4. Provide cues for effective recall and generalization of information.
Intellectual Skills	1. Call attention to distinctive features. 2. Stay within the limits of working memory. 3. Stimulate the recall of previously learned components skills. 4. Present verbal cues to the ordering or combination of component skills. 5. Schedule occasions for practice and spaced review. 6. Use a variety of contexts to promote transfer.
Cognitive Strategies	1. Describe or demonstrate the strategy. 2. Provide a variety of occasions for practice using the strategy. 3. Provide informative feedback as to creativity or originality of the strategy or outcome.
Attitudes	1. Establish an expectancy of success associated with the desired attitude. 2. Assure students identification with an admired human model. 3. Arrange for communication or demonstration of choice personal action. 4. Give feedback for successful performance, or allow observation of feedback in the human model.
Motor Skills	1. Present verbal or other guidance to cue the executive subroutine. 2. Arrange repeated practice. 3. Furnish immediate feedback as to the accuracy of performance. 4. Encourage the use of mental practice.

"The learning conditions appear to critically influence the learning of various outcomes (Driscoll, 2000)." Thence, Gagné and Driscoll referred to them as the building blocks for instruction (as cited in Driscoll, 2000). These conditions should be provided in

instruction, even when multiple outcomes are desired, all types of goals with their corresponding conditions should be considered. However, the planning of an instruction should support the internal processes presumed to occur during learning regardless of what is being learned throughout a lesson or course (Driscoll, 2000). Therefore, "The Nine Events of Instruction" was developed (see Table 7).

Table 7

Gagné's Nine Events of Instruction Associated with the Internal Learning Process They Support (Driscoll, 2000)

Internal Process	Instructional Event	Action
Reception	1. Gainning attention	Use abrupt stimulus change.
Expectancy	2. Informing learners of the objective	Tell learners what they will be able to do after learning.
Retrieval to working memory	3. Stimulating recall of prior learning	Ask for recall of previously learned knowledge or skills.
Selective Perception	4. Presenting the content	Display the content with distinctive features.
Semantic encoding	5. Providing "learning guidance"	Suggest a meaningful organization.
Responding	6. Eliciting performance	Ask learner to perform.
Reinforcement	7. Providing feedback	Give informative feedback.
Retrieval and reinforcement	8. Assessing performance	Require additional learner performance with feedback.
Retrieval and generalization	9. Enhancing retention and transfer	Provide varied practice and spaced reviews.

Anglin and Towers highlights that "Gagné's instructional theory is widely used in the design of instruction by instructional designers in many settings, and its continuing influence in the field of educational technology can be seen in the more than 130 times that he has been cited in prominent journals in the field during the period from 1985 through 1990 (as cited in Driscoll, 2000)." However, "The nine events of instruction" has a systematical structure and it is neither flexible nor applicable along with constructivist epistemology (Driscoll, 2000). It is often perceived as time-consuming. Eventually, the continuous focus on instructional goals/objectives and the intended learning outcomes disable the autonomy of instructors and learners.

2.3.2.3.3. Dick and Carey Model

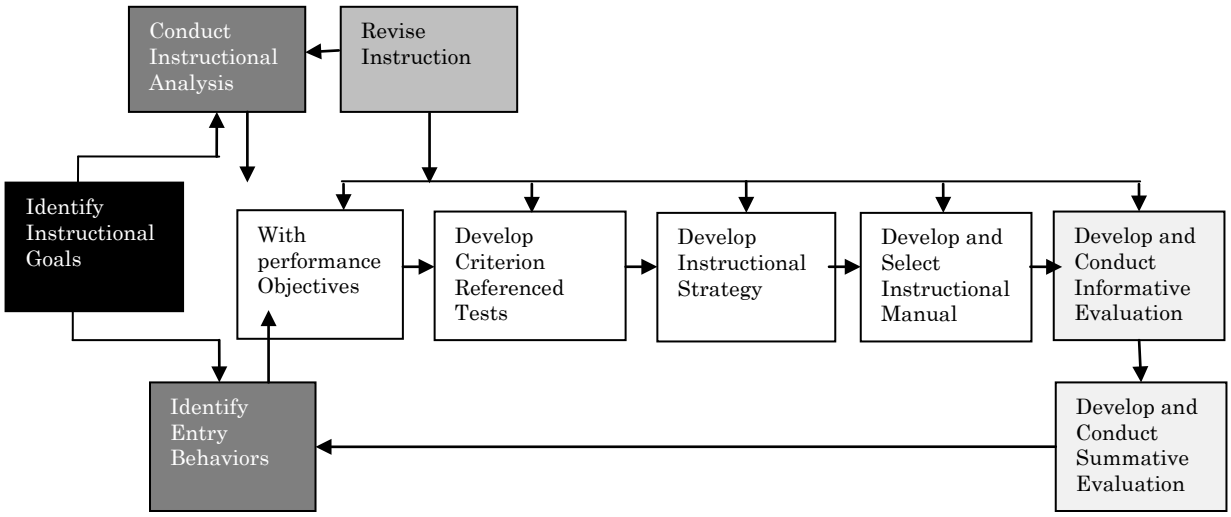

Figure 4. Dick and Carey ID model illusturation (Dick, Carey, & Carey, 2009)

The Dick and Carey model (see Figure 4) is a systematic instructional design model that is significantly influenced from the ADDIE model (cf. Melsom, 2010). It is based on a cognitive psychology system. However, the instructional design scholars criticize the model for being behaviorist, rather than being cognitive. The overview of the model is considerably similar to other instructional design models (see Figure 4). The model depicts a comprehensive and somewhat linear process that is sometimes criticized for being overly-rigid and cumbersome. It represents a detailed version of ADDIE model; indeed, it is influenced by nine events of instruction by Gagné. It is neither flexible, nor giving a chance for creative and autonomous application. Furthermore, the organizational aspects such as time, budget, environment, resource, relationships are excluded; thus social and communicational aspects kept out of the system alike other ID models.

2.3.2.3.4. Morrison, Ross, and Kemp Design Model

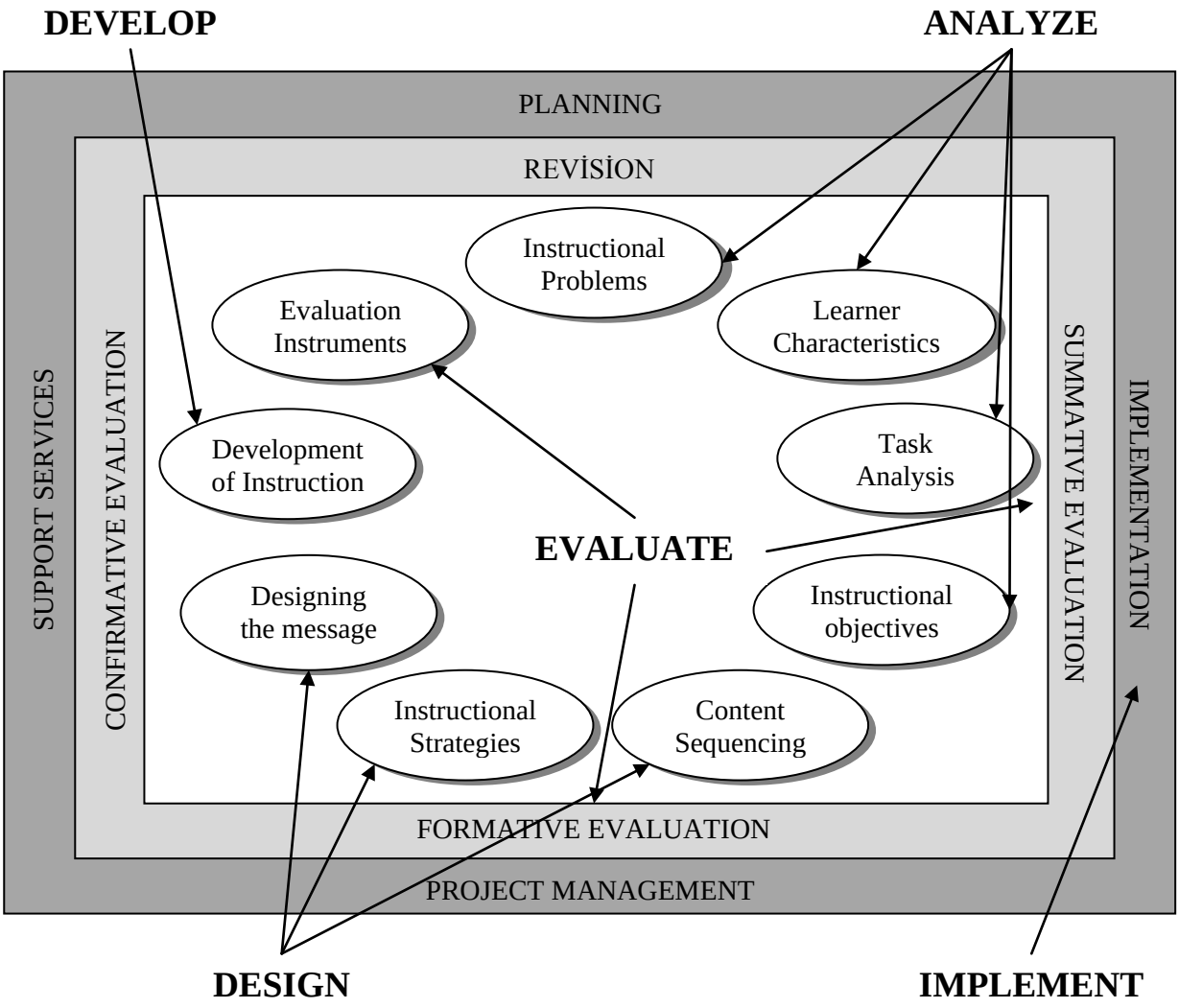

Figure 5. Kemp's model (Morisson, Ross & Kemp, 2004)

Morrison, Ross and Kemp's instructional design model focuses on an analogy and discovery-based learning environment. This model has a learner-centered nature whereby learner characteristics and their readiness levels are considerably covered. The influences of Gagné's nine events of instruction are observable. This ID model is an enhanced and detailed version of Gagne's model where the focus is more on learner-centric approach and the flexibility of course design.

It is a circular model in contrast to the instructional design model of Dick & Carey and the nine elements are interdependent from one another (see Figure 5). However, they are not sequentially designed. This model is an instructional model developed from the perspective of learners and it is a good example of the systems approach where the

overall process is demonstrated as a continous cycle. Finally, it is a decision model than an action model in which the emphasis is on how to manage an instructional design process (Akbulut, 2007).

2.3.2.3.5. Systematic Instructional Design Model

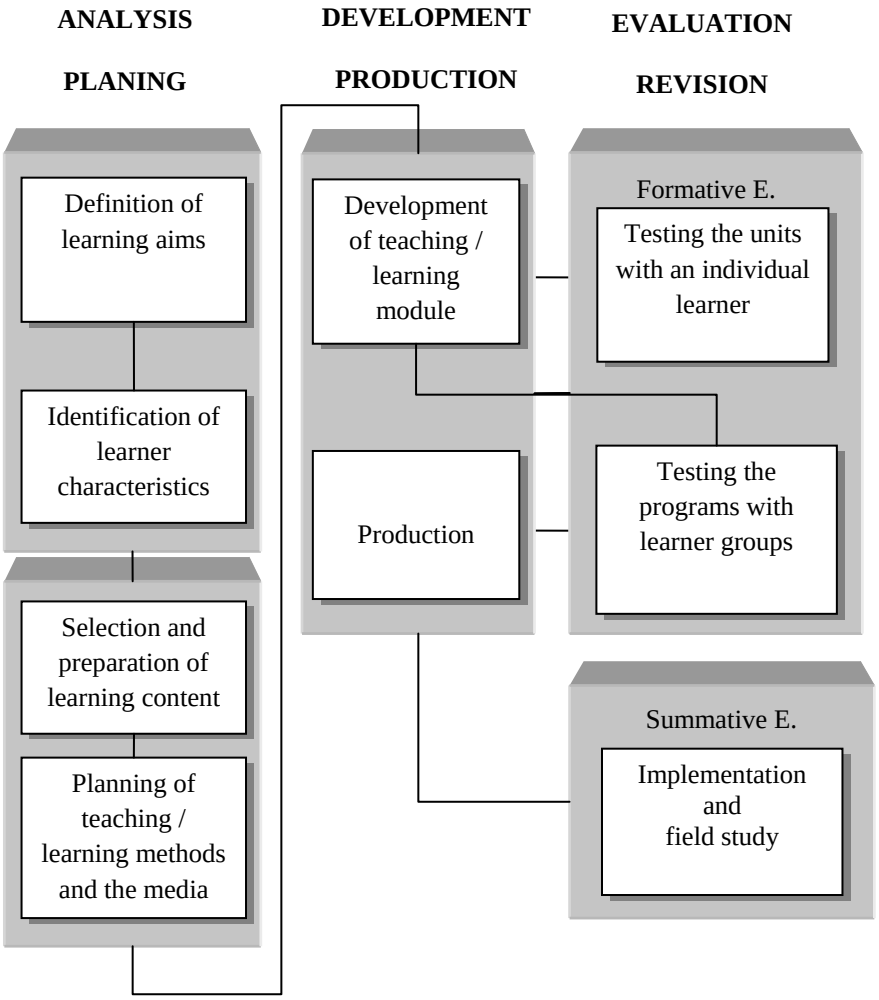

Figure 6. Systematic Instructional Design Model (Issing , 2002)

Ludwig Issing developed another systematic instructional design model in which the principles of programmed learning are formulated and more precisely stated with the principles of instructional design (see Figure 6). Systematic instructional design model represents the systematic planning, development, and evaluation of learning programs. “Systems Approach” is used to explain the three main phases of learning software development: planning and design; development and production; and evaluation (as cited in Issing, 2002).

According to Issing, a broad review of learning, psychology of knowledge, didactics, and media psychology is conducted initially. In fact, the descriptions of learning aims must be adequate, precise and cause an accurate change in behavior. The further review of learners' conditions or proceedings and the evaluation of efficient learning can only be possible when the learning aims are considerably defined.

The capability of learners, their previous knowledge and experiences, and their learning styles should be determined as the next step (Klimsa, 1993). Afterwards, the selection and preparation of teaching materials should be carried out that are provided by experts; and the instructor should organize the learning content (relevant texts, sentences, regulations, examples, assignments and test questions) in conjunction with strong instructional considerations (as cited in Klimsa, 1993).

The planning of instructional methods and visualization is the task of the didactics whereby the methodological procedure (inductive/deductive, problem solving, heuristic) with the decision on the type of visualization should be executed. Indeed, from preparation of teaching materials, planning of instructional methods to visualization; this process should be supervised by interdisciplinary teams (Klimsa, 1993). The decisions of which learning software and visualization should be used to reach the learning aims and other predefined factors are defined in the development and production phase. Eventually, evaluation and revision are included in the last phase of the model alike in other instructional design models. Issing separates evaluation phase into two parts: formative and summative evaluation. Formative evaluation is the interactive testing and revision of learning software; and summative evaluation is the field test under real-life conditions (as cited in Klimsa, 1993).

The systematic instructional design model focuses considerably on individual learner than the total population of target learners. If the concentration is only on a learner and for each learner an individual program should be developed, this would not be an effective choice; thus, this method can't be realized in practice. But, the emerging technologies in practice have new opportunities for individualization of learning programs whereby the learner's personal data can be recorded and recalled automatically in the later login. Thence, the individualization of the instructional procedure becomes realizable with the possibility to monitor each learner performances (Klimsa, 1993).

The systematic instruction design model of Issing is a combination of Gagné's theory of instruction and the ADDIE model; alike most of the other instructional design models.

However, the model of Issing includes the “systems approach” and developed specifically for new media and learning software development.

2.3.2.3.6. Gerlach and Ely Design Model

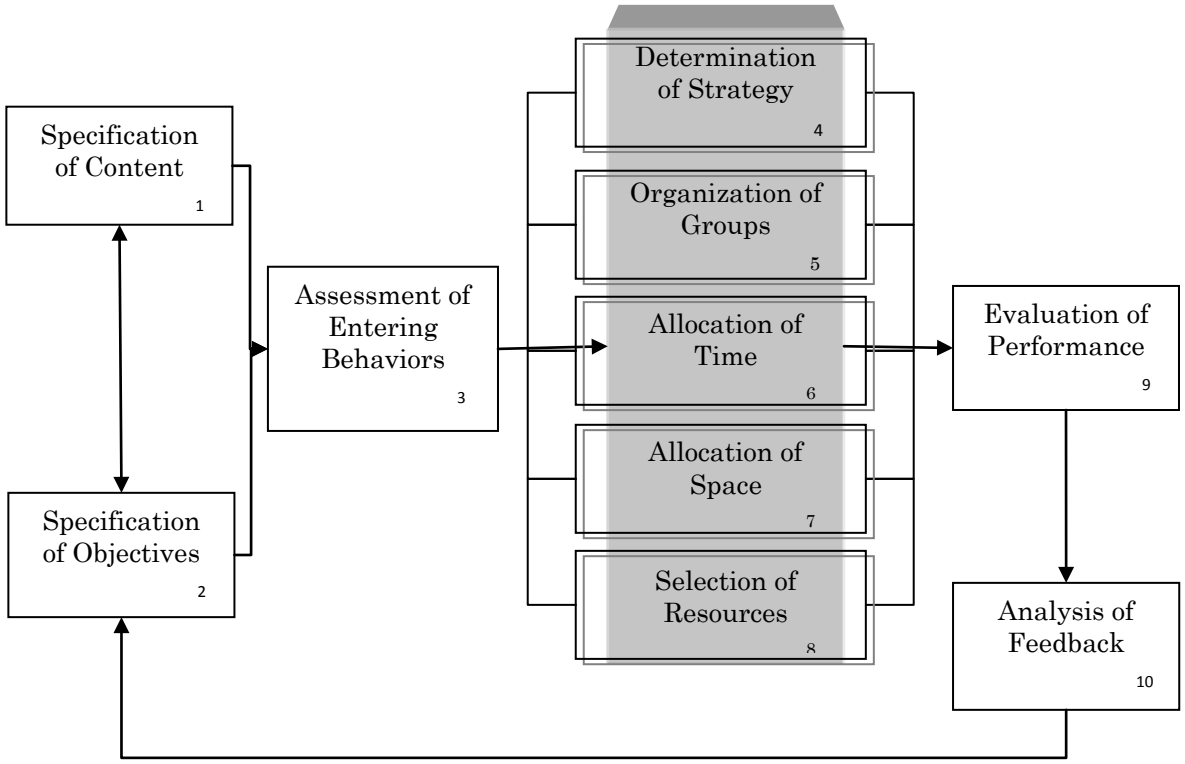

Figure 7. Gerlach & Ely Design Model (Grabowski, 2003)

This model represents a prescriptive, linear, and procedural design pattern in which the phenomenological and philosophical origins of this model can be accredited to communication theory rather than learning theory (Grabowski, 2003). In this sense, the communication theory that is mentioned here defined as careful, systematic and self-conscious discussion and analysis of communication phenomena by Griffen (as cited in Grabowski, 2003). It is a learner-centered design model that has alike systematic structure of ADDIE model. Indeed, the learning outcomes are based on cognitive, affective, and psychomotor domains that are developed by Gagné and improved by Bloom. This model covers organizational and instructional dimensions of instruction development. Although, the model has a systematic and sequenced nature, the instructors are encouraged to be creative and flexible whilst course implementation which is an added-value. The best use of this model is found to be suitable for secondary school and higher education (see Figure 7).

2.3.2.3.7. Hannafin and Peck Design Model

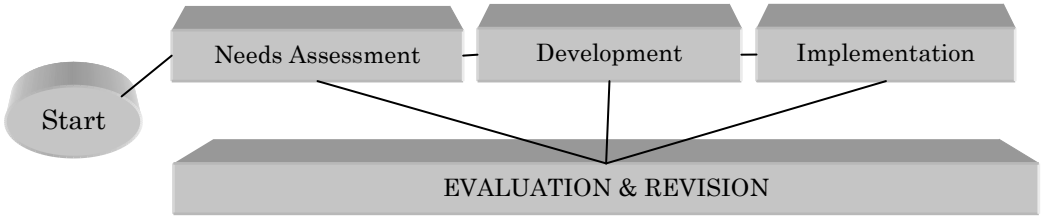

Figure 8. Hannafin & Peck Design Model (Hannafin & Peck, 1988)

Hannafin and Peck designed a three phased ID model that summarizes the whole process of an instructional planning and development on computer-based learning environments. It is systematical and procedural like other prescriptive ID models (see Figure 8). The needs of learners are assessed; instructional materials are developed in conjunction with learners' needs; the course plan is activated; and the whole three phases are evaluated and revised.

The computer-based instructional design model of Hannafin and Peck based both on behaviorist and cognitive psychology principles. Their model revealed a sequential, rigid, and highly teacher-centered approach (McPherson & Baptista lunes, 2004).

2.3.2.3.8. Four Components of Instructional Design (4C-ID) by Merriënboer

This model is a teacher-centered model that is specifically designed for instructions such as small training sessions or teaching in primary or secondary school settings. It does not involve the internal and external environmental factors; thus learner characteristics and pre-knowledge skills are disregarded.

The defined four components are: learning tasks, supportive information, just-in-time (JIT) information, and part-task practice. "Learning tasks" are concrete authentic whole task experiences that are organized in simple to complex task classes. "Supportive information" consists of mental models, cognitive strategies, and cognitive feedback. "Just-in-time (JIT) information" includes information displays, demonstrations, instances, and corrective feedback. It is usually provided when there is a need for a just-in-time information; right after the acquisition of expertise by learners, it quickly fades away. Eventually, "part-task practice" is organized in part-time practice sessions which are best intermixed with learning tasks. For complex rule sets, snowballing and repeated

sequences might be applied. The practice items are all divergent according to all situations that learning tasks defined (cf. Merriënboer et al, 2002).

2.3.2.3.9. Backward Design Model by Wiggins and McTighe

Backward design model is an assessment and evaluation oriented ID model which assumes that learning experiences should be planned with the final assessment in mind. Therefore, the initial focus is on assessment and secondary focus is on instructional activities. The goals of an instruction are being set afore the determination of content and teaching activities. It has three design stages: identify the desired results, determine acceptable evidence of learning, and design learning experiences and instruction (cf. Wiggins & McTighe, 2005).

The backward design model is appropriate for all learner profiles. However, there are considerations about the intrinsic and extrinsic motivational factors. Indeed, the learning styles and learner experiences are two major concepts that are significantly mentioned in this ID model. Although, the use of assessment at the end of each sequence and the evaluation are elementary features of this model; formative evaluation is not underlined regarding the other ID models. Although the model is more or less assessment-oriented, it attaches a stronger role to learner experiences. Eventually, backward design approach promotes “teaching to test” and assign the role of instructors as “teaching the test” (cf. Principles of Backward Design).

2.3.2.3.10. ARCS Model by John Keller

The ARCS model is a synthesis of motivational concepts and characteristics into the four categories of attention (A), relevance (R), confidence (C), and satisfaction (S) (see Table 8). The sets of conditions that are necessary for a person to be fully motivated represented in these four categories, and each of these four categories has component parts, or subcategories, that represent specific aspects of motivation (Keller, 2000).

Keller accentuates that “these four categories provide a basis for aggregating the various concepts, theories, strategies, and tactics that pertain to the motivation to learn. They represent the first major part of the ARCS model, which is the synthesis of the vast motivational literature into a simple and useful number of macro-level concepts. They also provide the basis for the second major feature of the ARCS model which is the systematic design process that assists you in creating motivational tactics that match student characteristics and needs (as cited in Keller, 2000).”

Table 8

ARCS Model Categories, Definitions, and Process Questions (Keller, 2009)

Major Categories and Definitions		**Process Questions**
Attention	Capturing the interest of learners; stimulating the curiosity to learn	How can I make this learning experience stimulating and interesting?
Relevance	Meeting the personal needs/goals of the learner to effect a positive attitude	In what ways will this learning experience be valuable for my students?
Confidence	Helping the learners believe/feel that they will succeed and control their success	How can I via instruction help the students succeed and allow them to control their success?
Satisfaction	Reinforcing accomplishment with rewards (internal and external)	What can I do to help the students feel good about their experience and desire to continue learning?

The reviews and integration of research literature and successful practices developed the ARCS model. It has been evolved in various research studies; for example, Means, Jonassen, & Dwyer, 1997; Small & Gluck, 1994; and Visser & Keller, 1990 (as cited in Keller, 2000); and it is being widely applied in divergent countries and cultures all around the world. However, simple, fundamental solutions to motivational problems are not offered by ARCS model; rather, problem solving approach that leads learners to discover solutions for a given situation is being offered. It is an evolving model and its goal is to support personal development of learners; thus, to build satisfying lives that contribute something positive to their world (Keller, 2000).

2.3.2.3.11. ASSURE Model by Heinich, Molenda, Russell, and Smaldino

The ASSURE model is designed by Heinich, Molenda, Russell, and Smaldino in order to assure instructional activities within instructional design processes. It guides instructors in designing systematic instructional strategies (for example, an authentic assessment of student learning and written lesson plans). Moreover, it is a kind of a procedural guide for planning and delivering instruction that integrates technology and media into the instructional process.

Analyze the learner,
State Objectives,
Select methods, media, and materials,
Utilize methods, media, and materials,
Require learner participation,
Evaluate and revise (cf. Cohen, 2005)

Heinich, Molenda, Russell, and Smaldino underlined that the ASSURE model is found to be helpful when designing technology-based instructions. It encourages the incorporation of internal and external class resources and technology into its learning materials (as cited in Tomei, 2007). "Although critics (at least of the acronym) find the letters ASSURE somewhat contrived, the acronym conveys the importance and interrelationship of the six major steps in the design of cognitive-rich lessons: analyze learners, state objectives, select media and materials, utilize materials, require learner participation, and evaluate/review. Most discussions of the ASSURE model offer additional, specific criteria for selecting media that considers key features when infusing technology into successful lessons (Tomei, 2007)."

2.3.3. Comparison of Instructional Design Theories and Models with the German "Didaktik"

Psychological learning principles constitute the ancestry of instructional design theories and models. Instructional design is a systematic process of instruction development that is based on open or close systems; primarily designed for military purposes. The components of a systematic instructional design are based on: input, process, output, evaluation, and feedback. Instructional design is the accepted theory of instruction in US countries. However, in Europe it does not have that unique impact. Indeed, the behaviorist focus, the systematic, and the pragmatist nature of instructional design are considerably criticized.

European education systems strongly emphasize the importance of philosophical understanding of education, rather than psychological understanding of learning. For example, England relies more on empirical approaches in the design of an instruction. The relevance of intellect and the related aspect of constructive and cognitive process of mind in the framework of positivism and rationalism are widely discussed (cf. Tennyson, 2010).

According to Tennyson and Schott, Europe was strongly influenced by experimental pedagogy and its psychological basis before World War I. However, the educational scientists in Germany were skeptical about usefulness of empirical research in instruction. Indeed, two problems aroused in German speaking countries: augmented percentages of students in higher education and available resources (as cited in Dijkstra, Schott, Seel, & Tennyson, 1997).

The structure of the curriculum found to be over crowded and there were several attempts to discover new opportunities. Thus, Wagenschein indicated that interdisciplinary teaching might be an idea for effective resource allocation (as cited in Dijkstra et al., 1997). The educational system of Germany is very well structured internally and externally; and it encourages interdisciplinary collaboration. However, this strongly interwoven structure of German education system limited the integration of emerging instructional technologies. Nonetheless, the higher education institutions in Germany decided to integrate emerging technologies in conjunction with German "Didaktik" approaches for effective use of resources. Recently, there are a lot of research studies about the potential use of emerging technologies in German education system.

Instructional design as a research subject is being investigated in Germany, indeed. However, the German scholars outline that in contrast to the traditional German "Didaktik", it is insufficient because of its strong focus on psychological learning theories; particularly on "behaviorism". Epistemology is more in the focus of the traditional German "Didaktik".

Instructional design theories and models are developed with regards to the initially emerged educational technologies in practice (programmed instruction) that do not considerably support communication, collaboration and networking alike recent technologies in practice. In fact, the systematic function of instructional theories and models could provide additional perspectives in conjunction with the recent technologies, if they allow more autonomous learning environments that are more flexible; allowing learners to determine several units personally to support their personal development. Undoubtedly, socio-political factors have significant influences on the design of any instruction; nevertheless, the latest emerging technologies and the arousal of informal learning over formal learning creates a shift in instructional design theories and models; thus, the emergence of new learning theories are being encouraged such as "connectivism".

The traditional German “Didaktik” has more humanistic perspective toward education than instructional design theories and models. In Germany, “Bildung” is not something that can be applied systematically. Thence, systematical pathways while developing instructional design strategies are not appropriate applications for German education system. Moreover, instructional design models do not emphasize the importance of flexible, creative, and communicative learning designs compared to “Didaktik”; thus, they are limited. They disregard the “social & anthropological surroundings” and the “human factor” in educational contexts. Contrarily, “Didaktik” significantly relies on “dialogue” between participants and has strong interdisciplinary connections. It focuses on philosophical and educational sciences principles of “Bildung”; rather than on psychological principles of “learning”.

Instructional design scholars believe that it is better to develop new theories of design and implementation for the new technological environments rather than trying to fit old ones to new settings (cf. Tennyson, 2010). The instructional design and the traditional German “Didaktik” theories and models are presented above as an overview to demonstrate the historical perspective on emerging educational technologies in practice and their effective and efficient integration into divergent educational systems. This overview shed light on a new framework called “Theory of eLearning Instruction” in terms of this study.

2.4. Subject-Matter Contextual Differences

Academic disciplinary differences are highlighted in numerous studies with regards to educational technologies in practice in US, Australian and European literature. These studies issue the disciplinary differences specifically between hard and soft dimensions; indeed, pure and applied dimensions are added subsequently. The development of academic disciplines is being discussed considerably beginning from epistemological discussions until today.

“The grouping of disciplines derived by Becher from the earlier work of Biglan and Kolb; that is to say, we classify disciplines under one or other of the broad headings hard pure, soft pure, hard applied and soft applied, each manifesting its own epistemological characteristics. These can be summarised briefly, at the risk of oversimplification (Neumann, Parry, & Becher, 2002).”

Biglan identified four main intellectual clusters which are labeled as hard pure, soft pure, hard applied, and soft applied. Indeed, Kolb has described those as abstract

reflective, concrete reflective, abstract active, and concrete active. Eventually, the divisions are identified considerably with the natural sciences, the humanities and social sciences, the science-based professions, and the social professions. Biglan's primary concern was with the nature of the subject-matter of research, while Kolb's was with styles of intellectual enquiry (Becher, 1994).

Smith et al. (2008) indicate that Biglan's taxonomy distinguishes disciplines with a definite ordering of knowledge (such as physics) versus disciplines lacking such agreed ordering (such as sociology). Indeed, they underline that the pure versus applied dimension distinguishes whether the content of the discipline intrinsically involves real-world problem solving.

Biglan's definitions of four intellectual clusters are expressed as cited in Neumann et al. (2002): "Hard pure knowledge (of which physics and chemistry are exemplars) is typified as having a cumulative, atomistic structure, concerned with universals, simplification and a quantitative emphasis. Knowledge communities tend to be competitive but gregarious: joint or multiple authorship is commonplace. Soft pure knowledge (of which history and anthropology offer cases in point) is, in contrast, reiterative, holistic, concerned with particulars and having a qualitative bias. There is no sense of superseded knowledge, as in hard pure fields. Scholarly enquiry is typically a solitary pursuit, manifesting only a limited overlap of interest between researchers. Hard applied knowledge (typified by engineering) derives its underpinnings from hard pure enquiry, is concerned with mastery of the physical environment and geared towards products and techniques. Soft applied knowledge (such as education and management studies) in its turn is dependent on soft pure knowledge, being concerned with the enhancement of professional practice and aiming to yield protocols and procedures. Applied knowledge communities, especially hard applied ones, are also gregarious, with multiple influences and interactions on both their teaching and research activity."

Becher (1994) identified that this fourfold typology of multidimensional scaling distinguish the diverse disciplines and professional groupings. However, he indicates there is a significant consensus about what counts as a disciplines and what does not. Disciplines are characterized either by their epistemological considerations, or by organized social groupings. In fact, the most agreed definition of discipline host both perspectives as in the argument of Price, "we cannot and should not artificially separate the matter of substantive content from that of social behavior" (as cited in Becher, 1994).

Sub-disciplines are emerged from disciplines via interdisciplinary collaborations, intellectual deviation and developments; thus they cannot be disregarded. Becher (1994) has strongly highlighted the importance of sub-disciplines or which he calls "subdisciplinary specialisms" and argued that "Bucher & Strauss characterize them as 'loose amalgamations… pursuing different objectives in different manners and more or less delicately held together under a common name at a particular period in history.' It is at least arguable that an understanding of the characteristics of such subspecialisms is essential to an appreciation not only of their parent disciplines but also of intersiciplinarity and of the phenomena of intellectual change and development (as cited in Becher, 1994)." Before any detailed discussion on the disciplinary differences with regards to any phenomena, the culture and the epistemological scaffold of each discipline should be emphasized (cf. Becher, 1994).

"Concepts of culture have long histories, and the way a society interpreted the terms representing these concepts has always mirrored their own culture. Culture is not an abstract whole, it is always a multitude of cultures that co-exist, influence each other, and constantly change (Budin, 2009)." Culture has neither a common nor an accepted definition. However, it represents the traditional and the social heritage of a community, civilization or any group of people; their customs and practices; their transmitted knowledge, beliefs, law, and morals; their linguistic and symbolic forms of communication and the meanings they share (Becher, 1994). Indeed, Bailey underlined that "culture is a plan for coping with the world" (as cited in Becher, 1994).

Disciplinary cultures, alike the earliest definitions of culture, represents the common practices, beliefs, knowledge structures, epistemological perspectives, intellectual skills and abilities, legal and moral rules, forms of language and communication, and the shared meaning of specific subject-matter domains. In fact, each subject-matter domain/field of study has different cultural artefacts considerably dependent on their epistemological scaffolds (see Table 9).

Becher (1994) has analyzed the significance of academic disciplinary differences with regards to three major levels: macro, meso, micro. Indeed, he underlined that macro level disciplinary differences focuses on the relationships between universities and external environment, on access problems, and on the labor market for graduates; meso level differences are relevant to enquiries into, and the development of such themes as institutional management, staff evaluation, faculty development, study skills programs,

and curriculum design; eventually, micro level disciplinary differences concentrate on the variations in departmental practice in research and teaching, including graduate education, and to the contrasting roles of heads of departments in different subject matters.

Table 9

Knowledge and Culture by Disciplinary Grouping (Becher, 1994)

Disciplinary grouping	**Nature of knowledge**	**Nature of disciplinary culture**
Pure sciences (e.g. physics): "hard pure"	Cumulative; atomistic (crystalline/tree-like); concerned with universal, quantities, simplification; resulting in discovery/explanations.	Competitive; gregarious; politically well-organized; high publication rate; task-oriented.
Humanities (e.g. history) and pure social sciences (e.g. anthrapology): "soft pure"	Reiterative; holistic (organic/river-like); concerned with particulars, qualities, complication; resulting in understanding/interpretation.	Individualistic, plurastic; loosely structured; low publication rate; person-oriented.
Technologies (e.g. mechanical engineering): "hard applied"	Purposive; pragmatic (know-how via hard knowledge); concerned with the mastery of physical environment; resulting in products/techniques.	Entrepreneurial, cosmopolitan; dominated by professional values; patents substitutable for publications; role-oriented.
Applied social sciences (e.g. education): "soft applied"	Functional, ulitarian (know-how with soft knowledge); concerned with enhancement of [semi-] professional practice; resulting in protocols/procedures.	Outward-looking: uncertain in status; dominated by intellectual fashions; publication rates reduced by consultances; power-oriented.

Micro level disciplinary differences are at the core of the analysis and synthesis of this research project. Indeed, subject-matter contextual (domain) differences rather than disciplinary differences are investigated. Those subject-matter contexts are special domains of sub-disciplines emerged from universal academic disciplines.

Davies & Devlin (2007) highlighted that "under the traditional notion of academic disciplines as discrete and autonomous, there is a standard educational pathway for students. With few exceptions, a student begins their studies in one of the broad faculty divisions (the sciences, arts, commerce, and so on). The student surveys the landscape of the disciplines and, by the end of their second year, specializes in one of them. This

discipline influences students' views about what is known, what is valued, and what is capable of investigation. By the end of their studies, a student of accounting need not know a great deal about finance; a biology student need not know much about physics; a psychology student may not be very familiar with neurology, and so on, though they may have passing familiarity with cognate disciplines."

Squires points out that the disciplines evolve and change over time dependent on the social, environmental, and political circumstances; thus they are not historically fixed. Indeed, he underlined the fact that disciplines define, protect and enlarge themselves along any dimensions, thenceforth they are multidimensional spaces in which they come into conflict or cooperation with other disciplines (as cited in Davies & Devlin, 2007).

Multidisciplinary, cross-disciplinary, and interdisciplinary approaches arouse from those conflicts or cooperation with other disciplines (cf. Davies & Devlin, 2007) that dissolves the permanent line between historically and epistemologically developed scaffolds of academic disciplines. The convergence and divergence of sub-disciplinary cultures and subject-matter domains becomes more visible.

Numerous research studies identified academic disciplinary differences with regards to their practices of eLearning such as in the studies of Smith et al. (2008), Czerniewicz & Brown (2007), Kemp & Jones (2007), and White & Liccardi (2006).

Smith et al. (2008) investigated the academic disciplinary differences with regards to curriculum and teaching styles in online courses across disciplines in higher education. The four dimensions developed by Biglan and Kolb is used for analysis over a period of five years (2002-2007). The results indicated considerable differences in tool usage, specifically in assessment. Moreover, the study of Czerniewicz & Brown (2007) examined the use of Information and Communication Technologies (ICTs) across different disciplines for the aim teaching and learning in five higher education institutions in the South Africa using Biglan's taxonomy of academic disciplines in order to compare and contrast their results internaltionally. Indeed, the use of digital resources by academic staff in a single UK University and its influence on academic practice over a two to three year period are inspected in the study of Kemp & Jones (2007) focusing on the way disciplinary differences affect the use of digital resources, and how academic progression is understood by academic staff in different disciplines, and its role in informing staff choices in deploying digital resources for student use. Eventually, White & Liccardi (2006) explored eLearning approaches that suit specific disciplinary preferences. They

surveyed students to find out methods which are particularly relevant to their studies. The results support the case for taking a disciplinary perspective when developing blended learning approaches.

In conclusion, these research studies constitute the initial literature on academic disciplinary differences with regards to eLearning. However, the focus of this dissertation will be on the characteristics of subject-matter contextual (domain) differences with regards to their eLearning practices within the developed conceptual framework of eLearning instruction.

2.5. A Conceptual Framework of eLearning Instruction

Is eLearning a technology, method, or an instructional strategy? The response is considerably dependent on the purpose/learning situation. eLearning can be used as a technology to enhance the current instructional practices (technology-enhanced learning); indeed, it can be a complete instructional process where the instruction is entirely (distance learning) or partially (blended learning) applied via eLearning.

Education scientists believe that still no satisfying theory of eLearning instruction is developed which will guide the processes and cause a significant change on learner performances. In fact, information and communication technology researchers identify two major problems that are limiting the diffusion of eLearning instruction worldwide: digital divide and digital literacy. Furthermore, sociological and anthropological researchers outline that the societal (culture) and individual characteristics (personality) are indeed dominant influencing factors that abide the broader application of eLearning instruction. Eventually, the importance of social presence and motivation are listed as other influencing factors from the perspective of psychology researchers. Although, there are various other constraints to build a consensus on the standardization of eLearning instruction aroused by divergent field of studies; no concluding argument is being constructed. However, eLearning has become a transdisciplinary approach in order to develop and sustain successful eLearning practices in conjunction with emerging technologies in practice by means of interdisciplinary discussions.

Effective distance education depends on the provision of pedagogical excellence (Bernard, Abrami, Lou, Borokhovski, Wade, & Wozney, 2004) and limited variability in results indicates “no significant difference” in distance education and face-to-face learning (Saba, 2000). This “no significant difference” phenomenon is being mentioned almost in every eLearning research study. However, the methods of those researches and

the way eLearning instruction (mode of instruction) is implemented within those divergent institutions/organizations (context) should be considered carefully for a relevant and reliable evaluation. Indeed, the “no significant difference” phenomenon demonstrates the success of eLearning instruction toward traditional instruction (Joy & Garcia, 2000).

The development of a theory of eLearning instruction is required that is flexible and autonomous. Emerging technologies have considerably divergent features than the prescriptive ones. Therefore, a conceptual framework of eLearning instruction should provide an environment that is more or less alike to the characteristics and features of those emerging technologies. A synthesis of the characteristics of determined technology in use and the opportunities those characteristics offer for a successful integration of technology with the current program, curriculum, instruction, participants, content, method, strategy, media, material, assignments, evaluation, feedback, and revision should be determined.

In this dissertation a wide variety of educational theories are discussed from the perspective of Germany (Didaktik, Bildung, Hochschuldidaktik, Fachdidaktik, Fachbezogene und fachübergreifende Hochshuldidaktik) and US (Systematical Instructional Design Theories and Models). Moreover, learning theories are mentioned in order to show linkages between active learning environments and appropriate learning theories such as "constructivism, social constructivism, and connectivism”. The conceptual framework of eLearning instruction developed in this dissertation is the analysis and synthesis of these educational design patterns. However, the main characteristic of the conceptual framework of eLearning instruction is the provision of an overall design pattern that significantly supports the autonomy of learners in the framework of adult learning.

How adults learn is being discussed since 1920s. However, no concluding theory or a model has been established covering those discussions until today. Indeed, andragogy and self-directed learning are essential components of adult learning. The earliest research questions asked whether or not adults could learn; rather than investigating how and in which circumstances adult learning occurs. Indeed, Thorndike, Bregman, Tilton, and Woodyard’s wrote the first book on adult learning in 1928; just two years after the founding of adult education as a professional field of practice. Thorndike and others have investigated adult learning from the perspective of behavioral epistemology. Until mid-

twentieth century, research in psychology and educational psychology dominated the field of adult learning. Afterwards, a shift was happened which is expanded from the need to develop a knowledge base specifically for adult education; thus the fields most important theory building efforts “andragogy” and “self-directed learning” have emerged (cf. Merriam, 2001).

Malcolm Knowles brought a new insight to adult learning in order to distinguish it from pre-adult schooling in 1968. Knowles’s definition of adult learning is “the art and science helping adults to learn” contrasted with pedagogy which is “the art and science helping children to learn”. According to andragogy, the adult learner is someone who:

- has an independent self-concept and can direct his/her own learning,
- has a collection of life experiences that is a wealthy resource for learning,
- has learning needs closely related to changing social roles,
- is problem-centered and interested in immediate application of knowledge,
- is motivated to learn by internal, rather than external factors (as cited in Merriam, 2001).

Several critics aroused toward andragogy, indeed two of them changed the direction of adult learning developed by Knowles: the dilemma of “theory vs. model” and the adult-only approach. Thus, Knowles moved from andragogy versus pedagogy to a continuum ranging from teacher-directed to student-directed learning between 1970 and 1980. Thus, both scenarios become applicable to both participant groups (children and adults) depending on the situation (cf. Merriam, 2001). According to Cyril Houle (Knowles’s mentor and author of several books on adult education), andragogy is significantly a learner-centered conceptual framework. He indicated that “andragogy should involve learners as many aspects of their education as possible and in the creation of a climate in which they can most fruitfully learn.” (as cited in Merriam, 2001). The scholarship on andragogy has divided into two major directions since 1990: “science, discipline, or technology?” (critics asking whether andragogy is a science, discipline, or technology) and “context-free andragogy? (focus on the autonomous adult learner than the context” (cf. Merriam, 2001). Draper highlighted that “andragogy” was originally emerged in nineteenth century Germany. Indeed, today the term is broadly used in Poland, Germany, the Netherlands, Czechoslovakia, Russia, Yugoslavia, and other central and eastern European countries; in British and North Americans it is called as “adult education” (as cited in Merriam, 2001).

The conceptual framework of eLearning strongly follows andragogy. In fact, it combines the andragogical principles of learning with the characteristics of eLearning instruction. Thus, learner-centered instruction and self-directed learning are at the core of this framework.

Knowles contributed to the "self-directed learning" literature with a book about how to implement self-directed learning through learning contracts in 1975. Indeed, Tough built on the work of Houle and provided the first description on self-directed learning between 1967 and 1971as "learning that is widespread, that occurs as part of adults' everyday life, and that is systematic yet does not depend on an instructor or a classroom (as cited in Merriam, 2001).

The goal of self-directed learning is emphasized in three different perspectives (Merriam, 2001):

1. **Humanistic philosophy** — Learner's ability to be self-directed and being responsible of own learning
2. **Fostering of transformational learning** — Critical reflection by the learner as the central for the process
3. **The promotion of emancipatory learning and the social action** — Self-directed learning positioned for social and political action than individual learning

Understanding the historical, cultural, biographical reasons one's needs, wants, and interests represents the critical reflection in transformational learning. Indeed, the responsibility of an adult educator in such a scenario is to assist adults to learn in a way that improves and enhances their abilities and skills to function as self-directed learners (Merriam, 2001).

The earliest models of self-directed learning (Tough and Knowles's) were very linear starting with diagnose of needs, identifying resources and instructional formats, and ending with the evaluation of the outcomes. However, the secondary models presented in the late 1980 and 1990 were less linear and more interactive whereby the learner is not only the focus of self-directed learning but also the context of the learning and the nature of the learning scenario itself are broadly considered. The instructional models on self-directed learning focuses on what instructors can do to foster self-direction and student

control of learning in the formal classroom setting (Merriam, 2001). Such models of self-directed learning are based on the own assessment of the learners' about their readiness to self-direct their learning. Thus, if the learners are able to self-direct their learning processes, the instruction involves learners' engagement in independent projects, student directed discussions, and discovery learning; if not, it involves more introductory material such as lecture, drill, and immediate correction are presented in the instruction (cf. Merriam, 2001).

The conceptual framework of eLearning instruction follows a non-linear approach in designing instruction strongly attached with andragogical principles of learning and emphasizes the importance of "autonomous learning". Autonomous learning is often associated with independence of thought, individualized decision making, and critical intelligence (Hiemstra, 1994) in which Gibbs highlighted as "anti-authoritarian ideology" (as cited in Hiemstra, 1994). The concepts of the framework of eLearning instruction are also significantly influenced from Danis's instructional model of self-directed learning (as cited in Merriam et al., 2007): learning strategies, phases of the learning process, content, the learner, and the environmental factors in the context.

The profiles of individuals' are changing rapidly, specifically the learners' and the instructors': digital natives and digital immigrants. Digital natives (learners; indeed junior instructors) are the people who born to the digital era and are already self-directed learners through their autonomous management of informal learning processes throughout digital technologies. Indeed, digital immigrants (instructors) are the people who are not born to the digital era but they try to keep up with the requirements of digital world to be able to master. From a pragmatics perspective, it is impossible to benefit from old theories of instruction to drive emerging technologies in practice. In order to fulfill the expectations of today's learners and even instructors, a reference to new theories of instruction is recommended.

Although technology is the primary variable of education in the digital era, the instructional strategy is not a secondary one. Both should go along in order to create more powerful educational environments to assure the quality in teaching and learning practices. It is a contemporary requirement to use various kinds of innovative technologies that are vital learning channels for today's learners; however, they would be more effective and efficient when they are successfully integrated into instructional contexts.

The conceptual framework of eLearning instruction is about the integration of emerging educational technologies into instructional circumstances. Indeed, this conceptual framework is developed to investigate the subject-matter contextual differences with regards to practice of eLearning; in order to answer the question of "What combination of instructional strategies and delivery media will best produce the desired learning outcome for the intended audience (adult learners)? (Joy & Garcia, 2000)" In other words, what is the theory of eLearning instruction (instructional design patterns & emerging technologies) in order to get efficient and effective learning outcomes and/or performances (the criteria of success) from the target groups (adult learners) within specific contexts (subject-matter contexts)?

The Four Dimensions

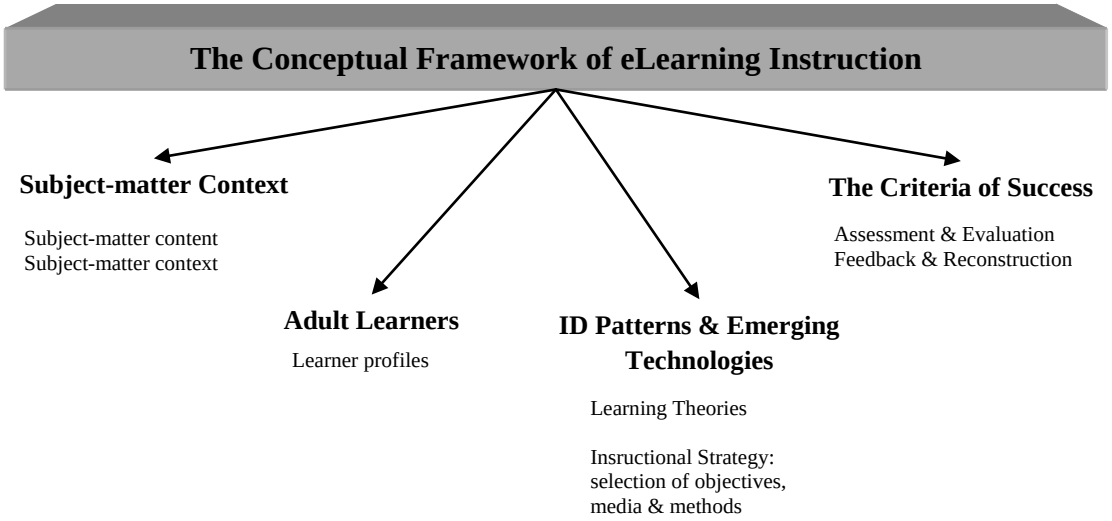

Figure 9. The Conceptual Framework of eLearning Instruction

The conceptual framework of eLearning instruction has four major dimensions (see Figure 9): subject-matter context, adult learners, instructional design patterns & emerging technologies, and the criteria of success. Under the umbrella of its four dimensions, this framework begins with a decisive unit "Problem statement"; alike every project development process in management and communication studies. Kerres, de Witt, & Strattman (2003) pointed out the importance of knowing the problem before starting to implement any paradigm in order to be concise. They highlight the importance of exact placement of new media in the conventional learning in order to observe the instructional

framework more in detail, find out where new media could be a benefit and result in more efficient and effective learner outcomes; where they emphasize the significance of problem statement for more successful practices.

The problem statement involves four questions in order to generate an overview draft of the course design and identify the role of eLearning within the certain instructional context (see Table 10).

Table 10

Problem Statement Phase of the Conceptual Framework of eLearning Instruction

Questions	Example
What is the problem?	The problem is the lack of interaction between learners whilst developing a new idea/argument about the subjects.
What is required to solve the problem?	The learners do neither have enough class hours to collaboratively discuss and construct a new ideology, nor flexibility in time and space.
Why eLearning should be practiced to solve the determined problem?	eLearning would provide an additional space for learners where they are enabled to interact and collaborate with each other on a more self-paced flexible environment.
In which ways could eLearning provide a solution for the problem in the certain context?	eLearning could provide a technology-enhanced environment for learners to accomplish self-study tasks together with their colleagues. It will provide an informal learning environment allowing each learner to contribute. Because individual contributions is an essential factor in developing intellectual abilities and skills within social sciences.

The generated short overview of course design acts as a guide for instructors throughout the determination in four dimensions.

The analysis of subject-matter content is the secondary consideration within the conceptual framework of eLearning instruction in order to recognize the subject-matter

content and requirements of the intended field of study. The subject-matter content is divergent according to the subject-matter context. Thus, there are different types of content such as theoretical, practical, factual, technical, analytical, narrative, interactive, self-learn, and more… The instructor should realize the specific features of the subject-matter context in order to decide on which type of content could be used mutually with the predefined technologies in the specific instructional context.

The subject-matter context is the culture of any field of study or discipline depending on the area of expertise. It involves components such as teaching, research, workloads, materials and tools, communication, etiquette (netiquette), communities, and interaction. In a complete vision, it is a theory for specifying context characteristics. Therefore, to be able to address the needs of a specific learner group in a certain context; it is required to analyze the subject-matter context and culture.

The target group of learners in the conceptual framework of eLearning instruction is the “adult learners” in conjunction with its theoretical background on andragogy. Dreyfus & Dreyfus divide learner groups into five major categories according to their knowledge and experience levels: novice, advanced beginner, competent, proficient and expert (as cited in Baumgartner, 2003). Baumgartner (2003) integrates them into a new model for eLearning didactics and added that the learner characteristics as mentioned by Dreyfus and Dreyfus could be used in an eLearning environment as decision factors for the technology in practice. For example, he mentions that a simple web-site could be an eLearning environment for novices who are learning the basics of the current subject; and a complex simulation such as virtual labs could be an eLearning environment for experts who are experiencing and acting in complex learning scenarios or landscapes. In fact, adult learners that are able to own assess and take responsibility of their learning processes is a critical characteristic of adult learner groups in which they are capable of their self-directed learning, specifically on eLearning environments.

The decision on participant characteristics assists instructors in the determination of appropriate eLearning environments in the conceptual framework of eLearning instruction. Baumgartner (2003) mentions that these participant characteristics are strongly attached to the social organization levels of lecturers (transfer, tutor, coach), teaching and learning activities, scenarios on those levels (context-free factors, contexts, shapes, patterns, problem-solving, and complex situations), and the sequencing of implementation (reception/remember, implementation/imitation, decision/selection,

discovery/action, and developing/construction). He finalizes his model as shown in the table (see Table 11).

Table 11

Differences between Traditional and eLearning Education (Baumgartner, 2003)

	Traditional	**eLearning**
Social organization levels	Transfer Tutor Coach	Static Web-Sites/Downloads Asynchronous Communication Complete Virtual Learning
Teaching and learning activities and scenarios on those levels	Context-free factors Regulations & Contexts Problem-solving Shapes & Patterns Complex situations	Access and motivation Online Socialization Information exchange Knowledge construction Self organization
Sequencing of implementation	Reception/remember Implementation/imitation Decision/selection Discovery/action Developing/construction	Web-site & CMS Exercises, Drill & Practice Problem-solving tutorial Exploration &web-based cooperation Web-based cooperative tools

The traditional instructional activities are carried onto eLearning settings according to conceptual and contextual matters including participant characteristics. In fact, Baumgartner (2003) stated that rather conducting product evaluation researches about eLearning, it is important to look at content and field-specific teaching and learning aspects. Kerres et al. (2003) underline that the target group analysis with regards to socio-demographic data, learner's pre-knowledge, motivation, study habits, study duration, setting and experiences is an essential task to have more successful eLearning practices.

Learning theories (behaviorism, cognitivism, constructivism, social constructivism, and connectivism) guide the overall instructional strategy of an eLearning instruction and they vary depending on the instructional content and context. For example, factual content is considerably linked with cognitive learning theory; contrarily, analytical content is attached to constructivist and social constructivist learning theories. All learning theories are applicable to any teaching and learning scenario dependent on the expected learning outcomes/performances. However, active learning theories and models (constructivism, social constructivism, and connectivism) are determined to be more appropriate for higher education where adult learning is at the fore. Indeed, in the conceptual framework of eLearning instruction the learning theories are based on adult

learning principles; thus, more active learning theories that support autonomous learning are envisaged such as constructivist, social constructivist, and connectivist epistemologies.

All components of the conceptual framework of eLearning instruction are essential units of an instructional strategy. Instructional strategy is the major scaffold of eLearning instruction. It is the planning of instructional elements according to get effective and efficient learner performances (the criteria of success). Instructional strategy can have a simple to complex, complex to simple, theory to practice, or practice to theory flow of information that is being determined by essential decision units such as subject-matter content & context, learner profiles, objectives, forms of representation & communication, assessment & evaluation, and feedback & reconstruction. An instructional strategy should be created in order to see the holistic framework of an eLearning instruction.

Technologies in twenty-first century demonstrate different characteristics than in nineteenth and twentieth century. They are based on social interaction, collaboration, networking, and collective action of human beings where different communities of practices are established. Individuals acquire knowledge in their self-pace throughout self-management of learning objects, discussions, and collaborative development with 6,903,500,000 other people. Those technologies offer interactive, social, collective, collaborative, participative, simulative, narrative, multimodal, entertaining, game-based, technical, electronic, online, offline, open and massive learning environments. The term “social” got incredibly attention within educational borders. The instructors invite students to become more and more participative in instructional activities they design. In addition, students’ interaction forms with each other have changed with the current ICTs, informally and intentionally. In such a system, education is becoming more powerful each day where the information, communication, collaboration and participation features enable individuals to learn about any topic whenever, wherever, and however they desire. Teaching and learning is transformed into flexible and ubiquitous activities and they undertake the characteristics of the current innovative technologies.

In order to teach a specific target group of learners with the emerging technologies of twenty-first century, an analysis of the selected technologies with an emphasis on instructional strategy should be conducted; to underline the characteristics and integrate instructions successfully with the selected technologies to be able to reduce gaps that may occur because of the mismatch of technology with the instructional design patterns.

The instructional objectives should be determined simultaneously with the decisions on subject-matter content, context, and emerging technologies in practice. The instructional objectives should carry the characteristics of what to achieve at the end of the course. It is demanded from learners to adapt and accomplish the pre-defined objectives. Clearly defined instructional objectives facilitate the adaptation of learners; indeed, an attention getting introduction increases the motivation of learners. Instructional objectives vary dependently to the instructional content and context. However, they are not as variable as the learner characteristics and skills. Personality of each individual can be very contrasting with each other in specific contexts. Indeed, there are various kinds of skills and abilities (analytical, factual, technical, discussion, self-learn, and motivation) that each subject-matter instructional content and context request. Thus, the skills and key qualifications that the learners have to demonstrate in order to succeed should be pre-defined.

The selection of instructional tools/materials/media and appropriate instructional methodology are examined under the dimension of instructional design patterns and emerging technologies. Indeed, the decision on instructional methods is highly dependent to “instructional strategy” and the determination of instructional media, tools, and materials are considerably dependent to the “emerging technology”. The emerging technologies represent the “DRIVES” and the instructional strategies (instructional methods) represents the “DRIVERS”. All the opportunities that emerging technologies offer for the purpose of education are examined under “drives”. Indeed, the appropriate instructional methods applicable in conjunction with those emerging technologies are investigated under “drivers”.

The subject-matter context structures should be investigated with regards to subject-matter content structures. For example, the engineering sciences require more simulation-based scenarios than social sciences because of their complex content structures. Moreover, virtual reality based scenarios to learn complex knowledge structures are well-founded within the medical sciences context structures. Thus, different context and content structures might have divergent forms of instructional representation.

The effective combination of emerging technologies with the potential instructional strategy conceptualizes successful eLearning practices. A careful analysis of the conceptual framework of eLearning instruction assists instructors on their decision of what kind of learning objects in conjunction with appropriate instructional strategies

could be applicable in order to obtain effective and efficient learner performances. For example, if the subject-matter content is factual, the instructor might use more illustrative and simulative demonstrations, rather than text-based instructional tools in order to gain attention from learners and simplify the complex content structures for a better understanding in the subject-matter context.

Communication enables the transfer of any content and the socialization of mankind. In education, communication administers the transfer of information in several different manners: one-way, multi-way, participatory, non-participatory, and networked.

Communication and socialization are crucial needs that are presented in each phase of the theory of human motivation (Maslow, 1943). Socialization indicates participation in any social activity such as going to school, work, party, and café where human-beings share and interact (communication perspective) their cultural artifacts (sociological perspective) within a known community or an unknown community; that is a physiological and psychological need of a human being (psychological perspective).

The emergence of eLearning led to the development of new communication approaches such as “participatory communication” whereby human-beings can share, participate, socialize, communicate, network, and collaborate in digital environments. It enhances the social activities on digital environments. Participatory communication involves many-to-many, multi-way, and two-way (bidirectional) communication. A participatory culture is encouraged by participatory communication in which the individuals are free to express themselves in accordance with their own self-perceptions, to think critically, to comment on any post, to search for information worldwide, and to communicate with diverse individuals around the world according to their point of interests. In such an environment novice learners require more supervision and guidance in contrast to expert learners. Indeed, expert learners have more advantages than novice learners in communicating and networking via digital media platforms in a participatory context. Moreover, participatory communication encourages self-directed learning.

Non-participatory communication is a linear communication model where the system flows unidirectional and there is no flexibility in communication activities. Non-participatory communication involves one to many, one-way communication. In contrast, participatory communication is diagonal where conversational, collaborative, and collective activities are at fore. The emphasis is on participatory and collective process in

research; problem identification, decision making, implementation, and evaluation of change (cf. Tufte & Mefalopulos, 2009).

Participatory communication is majorly issued in development communication, for social change like in the study of Tufte & Mefalopulos (2009) and as a communication of learning in rural areas for adults as in the study of Coldevin (2003). However, it is also a profitable communication model for eLearning. Participatory communication reinforces development communication and it is a collaborative action of individuals to form a social change. In the context of eLearning for adults (higher education), it can offer an opportunity for active construction of information into common knowledge via the learners' self-efforts and self-perception. Supervision of an instructor is definite; however, it should be invisible to learners in order to enhance their critical thinking skills.

The conceptual framework of eLearning instruction is a an umbrella conceptualization that focuses on the theory of eLearning instruction (instructional design patterns and emerging technologies) in order to obtain efficient and effective learning outcomes/performances (the criteria of success) from the target group (adult learners) within specific contexts (subject-matter contexts); and it is primarily designed according to andragogy. Therefore, participatory communication is more in the focus, rather than non-participatory communication which is unidirectional.

The digital technologies today confront instructors with lots of potentials to assess and evaluate the success of learners. For example, the statistical analysis of learner performances is becoming easier with the visual data analysis of web services such as Web 2.0 and 3.0. In addition, new assessment forms are established such as the user generated content on web via web journals, blogs, and wikis whereby the learners are indeed able to self-reflect and self-assess. There is a shift in the forms of assessment and evaluation with the help of digital environments. This shift raises important problems such as "privacy" and "intellectual property rights". However, various software and hardware are being developed by instructional technology engineers to overcome those problems.

The autonomy of adult learner is at the core of adult learning principles and the conceptual framework of eLearning instruction, thus the self-reflection and own assessment of learners are considerably envisaged. The instructor should supervise the adult learners in accomplishing their objectives; indeed, they should not disturb the

organic learning process of them. The instructor should remain as an outer eye to the inner learning processes of an adult learner.

The success of learners should be evaluated according to the skills, abilities, and key qualifications that they have mastered in conjunction with the subject-matter content, context, instructional strategy, emerging technologies and their expertise in self-directed learning within the determined eLearning environment.

The quality assurance of an eLearning instruction is conducted via feedback and reconstruction. Feedback is a reinforcing factor to design eLearning instructions according to learners' needs, wants, and interests. In fact, feedbacks increase and sustain the motivation of learners as long as they are deliberately taken into account. Eventually, the continual evaluation of learners, instructors, instructional strategies, and technologies in a holistic perspective assures the quality of an eLearning instruction and enhances the way it is conducted, iteratively.

In conclusion, the conceptual framework of eLearning instruction is a descriptive framework for guidance. Andragogy, self-directed learning, and active learning theories are dominant instructional principles in the design of an eLearning instruction in four dimensions: subject-matter context, adult learner, instructional design patterns & emerging technologies, and the criteria of success. In this study, this conceptual framework of eLearning instruction is applied as a scaffold for the analysis and synthesis of the obtained results with the recent literature to develop a new perspective on the practices of eLearning with regards to different subject-matter contexts.

3. METHOD

3.1. Research Design

Popper believes that science is an open enterprise. In addition, Feyerabend and Rombach considerably underline that sciences should have a “method tolerance”; namely the “laissez-faire”, where there should be no strict set of standards that each science has to follow (as cited in Ludwig, 2007). However, Ludwig highlights that this detached structure or the “exaggeration of openness” will result in randomness, arbitrariness, and insignificance of research studies which will decrease the quality in scientific research in both quantitative and qualitative dimensions (cf. Ludwig, 2007). Therefore, each method should have some common set of standards to assure quality and be interrelated.

The study of Baert, “Philosophy of the Social Sciences: Towards Pragmatism” emphasizes the characteristics of social sciences in detail in terms of philosophical discourse. It distinguishes the context of social sciences from natural sciences. The developed arguments reveal that the humanities and social sciences are dynamic and change over time alike each individual (cf. Baert, 2010). If a quantitative method is implemented to discover and explore a new paradigm, it would be successful for gaining certain data in a limited framework (limited to the scales and hypothesis) in the certain time range and generalizability of the results would be high.

The use of quantitative research in social sciences will provide objective, reliable, and valid outcomes. However, these outcomes exclude additional personal statements, arguments, critics, and comments which may open-up new dimensions for a further investigation. Furthermore, as Baert (2010) underlined, the social sciences are dynamic alike individuals; thus the respondents feelings, emotions, behaviors and thoughts may change after the application of the quantitative method in seconds, hours, days, weeks, months, and years; dependent on the personal, organizational, and societal circumstances. Eventually, this reduces the generalizability, objectivity, reliability, and validity of the research outcomes.

Qualitative methods are facing with the same problem of “dynamic nature of social sciences”, but the open, descriptive, and interpretative functions of qualitative research enables researchers to collect data without manipulating the natural process of data collection, emancipates the respondents to express themselves more in detail, and concludes with several assumptions about the potential changes in the future derived from

the detailed interpersonal conversations that are based on critical observance of demonstrated behaviors (i.e. extra verbal cues), analysis, and synthesis.

The qualitative research broadens the scientific discovery of humanities and social sciences rather than natural and formal sciences based on factual understanding. The individual, society, and their interrelations are in the focus of humanities and social sciences. In addition, these sciences try to understand diverse phenomena and create a meaning, thus the research methods should be based on the social epistemology "hermeneutics".

This dissertation is based solely on a qualitative research method: in-depth semi-structured interviews that allow a flexible and iterative approach for acquiring information about a new subject are executed. Creswell underlines that when the research problem is immature or there is a lack of theory and previous research; a qualitative approach is foreseen as appropriate (as cited in Keller-Mathers, 2004). There is insufficient literature on subject-matter contextual differences with regards to eLearning in higher education that is conceptualized around a framework of eLearning instruction, thus a descriptive/explanatory approach is required for the analysis and the synthesis of the findings in this research study.

The in-depth semi-structured interviews are conducted to be able to compare and contrast the eLearning practices of different subject-matter contexts in a more accurate, discursive, and interpretative way to build a conceptual framework of eLearning practices of diverse subject-matter contexts in higher education, and to increase the quality and successful application of emerging educational technologies in diverse subject-matter contexts.

3.2. Participants

The research design of this dissertation involves a primary and a secondary group of participants. The primary group of participants involves eLearning experts who are scholars and/or professionals in the field of education sciences (see: Appendices). Indeed, the including criteria in recruiting eLearning experts is based on their backgrounds and publications in the field of eLearning. Specifically, scholars from educational sciences and eLearning professionals are invited. Moreover, the secondary group of participants involves instructors from different subject-matter domains, specifically from humanities, social sciences, and engineering sciences, who already taught at least one course via any kind of eLearning (see: Appendices)

3.3. Instruments

Two qualitative survey instruments are designed to gather information from each participant group: *Qualitative Semi-Structured Survey of eLearning Experts' Perspectives on eLearning Practices in Diverse Subject-Matter Contexts* (see: Appendices) and *Qualitative Semi-Structured Survey of Instructors' Perspectives on their own eLearning Practices* (see: Appendices). Both questionnaires are reformed in a circular strategy of qualitative research where each research phase is dependent on one another. The outcomes of the primary participant group guided the construction of semi-structured qualitative survey of the secondary participant group. The semi-structured qualitative surveys are used for guidance. All questions are designed in conjunction with research questions and the developed conceptual framework of eLearning instruction guided the structure of the surveys and the flow of interviews.

3.4. Procedures

The qualitative social research is significantly different than quantitative research in which the logical flow of order is circular rather than linear. The circular strategy is an iterative replication of certain research phases where the latest phase is dependent on the previous one. In the beginning of a research project in qualitative domain, the researcher has a preliminary understanding of the research subject whereby they cannot plan the next phase of the research before the decision on the interviewees, the process of implementation, and the subsequent evaluation. Each phase has outcomes for forward (action) and backward consideration (modification). Therefore, the investigation process can neither be planned and nor be determined in advance (cf. Witt, 2001).

In this dissertation, the interviews were realized in a deductive ordering. The initial interviews were conducted with the primary group of participants, in order to understand their overall ideas and opinions about subject-matter contextual characteristics with regards to eLearning practices in higher education. The findings constructed a scaffold of potential similarities and differences in theory. Afterwards, the qualitative survey to investigate instructors' perspectives on own eLearning practices in certain subject-matter context is developed from the initial findings in order to investigate whether the pre-defined contextual characteristics (by the primary group of participants) exist in practice or not.

The contact was made with one hundred fourteen individuals including eLearning experts and instructors from diverse subject-matter contexts via e-mail invitations.

However, a total number of twenty two individuals accepted to participate. The interviews were recorded with the permission and transcribed into text files with the help of Microsoft Office Word 2007 software application. Because of having technical disabilities and availability of time, two interviews are conducted in a written open-ended questionnaire format. Eventually, all interviews were conducted online via Skype Voice over Internet Protocol (VoIP).

3.5. Data Analysis

The raw data obtained from the interviews in both segments are transcribed, elaborated and coded into categories and subcategories. The initial outcomes of primary group of participants guided the interviews with secondary group of participants. Three codebooks are derived from the interview transcriptions of eLearning experts and instructors, and the review of experience reports conducted in diverse subject-matter contexts (see: Appendices).

Ludwig (2007) underlines that qualitative research has to establish a culture of research standards. Accordingly, he cites the studies of Mayring and Seale and indicates that “the analysis of qualitative data should be done hypotheses-directed or directed by research questions or aims. Just to look open minded if ‘something interesting’ can be found, does hardly lead to concrete results (as cited in Ludwig, 2007).” Thus, following research questions guides this qualitative study.

3.6. Recall of Research Questions

This thesis will try to answer following research question and the sub-questions to facilitate the intended research. These questions guide the direction of the research.

Research Question is:

How do diverse subject-matter contexts practice eLearning in terms of technological, instructional, and organizational aspects in higher education?

The main research question enquires answers to build a conceptual framework about how emerging technologies are practiced in diverse subject-matter contexts (particular focus is on humanities, social, and engineering sciences) where adult learning is the key function of educational processes.

Sub-questions are:

- *How do diverse subject-matter contexts implement eLearning in their own culture with regards to the conceptual framework of eLearning instruction?*

The similarities and differences of diverse subject-matter contexts with regards to eLearning in higher education are investigated and a synthesis of the literature review and the overall findings are presented under this sub-question according to build a framework for eLearning instruction in different contexts. The synthesized data is merged with the developed conceptual framework of eLearning instruction and categorized. The presented findings demonstrate the extent of eLearning instruction practiced in diverse subject-matter contexts with regards to technological, instructional, and organizational aspects in higher education.

- *What are the benefits and challenges of eLearning instruction for diverse subject-matter contexts?*

The benefits and challenges of eLearning instruction from the diverse subject-matter contexts point of view are described to indicate the position of eLearning in different contexts in order to be able to compare and contrast, and to define what has to be improved to benchmark eLearning in different contexts.

- *What are the attitudes of instructors from diverse subject-matter contexts toward eLearning?*

This sub-question is enquired to recognize certain kinds of instructor behaviors in diverse subject-matter contexts toward eLearning instruction in higher education.

- *How would an eLearning environment look like which meets the requirements of diverse subject-matter contexts?*

Previous sub-questions identified the current eLearning practices and potential limitations in diverse subject-matter contexts. However, this sub-question is asked to establish a review of imaginary eLearning environments specifically designed for certain contexts to be able to compare and contrast the current practices with the imaginary best practice examples, to organize ideas about possible improvements, and to develop eLearning practices that are more context-specific.

3.7. Limitations

Qualitative research methods are always judged as being subjective rather than being objective. Indeed, the descriptive qualitative findings are not eligible for generalizations; thus the evaluation process is assumed to be open for subjective interpretation. Social

sciences are based on creating meaning from social issues. Human beings and the society are at the core of social sciences methodologies. The impact of quantitative methods is not deniable. Nevertheless, if there is no previous research study or a theoretical background about any subject-matter under investigation; experienced individuals, groups, and communities who are currently involved with that specific subject-matter can be accepted as resources. Therefore, this research study has the rights to state the situation of eLearning practices in diverse subject-matter contexts from the perspectives of interviewed participants. In addition, it has definitely right to enhance and improve the theoretical approaches.

Kvale explored the different philosophical approaches about how qualitative interviews can generate knowledge. He has rejected the influence of positivist approaches on qualitative research methodologies. He underlined that the qualitative research does not have to have an objective look since the objectivity in itself has a subjective notion; qualitative research can also be objective by "letting the investigated object speak" in defining the real nature of the object. According to him, in-depth interviewing method is neither an objective nor a subjective method since its essence is "inter-subjective interaction". The quantitative and qualitative methods interact within the practice of social research and a linguistically constituted social world legitimates the use of qualitative interviews as a useful tool (Kvale, 1996).

Recruiting of interviewees to interview within the framework of this dissertation was another limitation. One hundred fourteen invitations were sent including both participant groups via e-mail and only twenty two interviews were conducted which were satisfying due to the saturation fact of the interviews rather than the number of interviews.

Guest, Bunce & Johnson (2006):

"Using data from a study involving sixty in-depth interviews with women in two West African countries, the authors systematically document the degree of data saturation and variability over the course of thematic analysis. They operationalize saturation and make evidence-based recommendations regarding non-probabilistic sample sizes for interviews. Based on the data set, they found that saturation occurred within the first twelve interviews, although basic elements for meta-themes were present as early as six interviews. Variability within the data followed similar patterns."

The use of Skype VoIP to conduct the interviews was an effective way for online communication with the interviewees. However, there were a few technical problems.

The “ifree open source Skype conversation recorder” was used to record the interviews but there was overlapping speech of interviewer and the interviewee in two of the interviews. Indeed, the interview which is desired to be conducted with Prof. Dr. Ulrik Schröder from RWTH Aachen was planned but could not be accomplished because of an urgent microphone problem happened in the participant’s computer. As a solution, the qualitative questionnaire was sent via e-mail and the interviewee resent the filled questionnaire to the interviewer after thirty five minutes without having any problems with the questions.

4. CONCLUSION

An analysis of the outcomes is presented in this chapter. Categories, subcategories, research questions, and the conceptual framework of eLearning instruction are synthesized in order to create a holistic overview on eLearning practices of diverse subject-matter contexts in higher education. A theoretical approach is introduced initially that is elaborated from primary group of interviews with “eLearning experts”; afterwards, a practice-oriented approach is presented that is obtained from secondary group of interviews with “instructors”; eventually, a combination of both approaches into the conceptual framework of eLearning instruction is realized.

4.1. In-depth interviews with primary group of participants “eLearning experts”: A theory-oriented approach toward eLearning practices of diverse subject-matter contexts

The main purpose of semi-structured *Qualitative Survey of eLearning Experts’ Perspectives on Practices of eLearning in Diverse Subject-Matter Contexts* is to investigate whether there are different practices of eLearning in diverse subject-matter contexts or not.

The author of this study focuses on the subject-matter contextual differences between humanities/social sciences and engineering sciences in conjunction with the epistemological evolution of each where there is a great distinction in the characteristics of both contexts with regards to scientific patterns, teaching, and research. Therefore, the results are analyzed and discussed within these circumstances.

Primary participant group “eLearning experts” mainly indicated that there is a difference in eLearning practices of humanities/social sciences and engineering sciences that might have aroused from various kinds of reasons such as context, content, media literacy, and media competency. Although the majority of interviewees agreed upon the potential differences between diverse subject-matter contexts, two interviewees underlined that there are no considerable borders.

Interviewees emphasized that humanities/social sciences encourage communication, interpretation, collaboration, discussion, and interaction where learners have to create a meaning from social artifacts. Thus, humanities/social sciences are found to have greater complex structures rather than engineering sciences.

The quality assurance of instructional considerations whilst practicing eLearning in diverse subject-matter contexts is intensely stressed. Furthermore, it is assumed that a high level of eLearning is still not accomplished. Nevertheless, when the readiness levels of diverse subject-matter contexts is regarded, sociology like subjects found to be more adjusted to embrace eLearning. Although, the humanities/social sciences are determined as frequent users of emerging technologies, they are indeed pointed up as resistant toward the use of eLearning in their own context whilst the focus is considerably on instructional strategies and personal growth of learners rather than one-dimensional integration of educational technology. They have radical views on educational theories and models, thus they hardly integrate new technologies into current educational processes. In such subject-matter contexts, worldwide connected working is crucial to generate discussions and reveal new dimensions whereby emerging technologies offer enormous opportunities for achievement.

It is underlined that factual content structures are widely accommodated in the context of engineering sciences where calculations and experiments are at the core, rather than interpretative discussions based on social epistemological principles alike in social sciences.

"…um, in the engineering sciences and the engineering sciences...we have much more delivery of facts. And, in social sciences we have much more discussion-based, um, learning. Although, of course, to bother, this is flowing in between so, we have also discussions in engineering, facts in social sciences, of course, well, the focus is different. (Knipping: 21-27)"

"…technical science means, you use formulas or calculations, and you also thinking in this kind of way. And, um, in social sciences we have if you see, in social studies you have, um, the most of the study is to discuss and to make reports and think about things, um, in the technical science we have, um, not this problem, there is no real discussion because you have to calculate…(Ebner: 19-24)"

The tendency to research instead to teach in hard sciences and to teach instead to research in soft sciences is underlined by eLearning experts alike in Biglan's taxonomy of academic disciplines.

"…In my opinion, um-um, learning technologies and education technologies, um, has really big added value for engineering, for technical sciences regarding how I can improve learning and teaching at universities but also at colleges or whatever, and our

experiences is also the quality of teaching and learning for the typical engineering sciences or technical sciences is not so important. (Igel: 56-59)"

"…, if you have a look on the humanities if you have a look on the psychological disciplines, or pedagogic or however, they are more interested in to improve the quality of learning and the typical technical disciplines, they are more focused on research and development. (Igel: 61-63)"

It is accentuated by eLearning experts that hard sciences do not concentrate on the design of any instructional event; rather, the apprenticeship model of learning is broadly embraced.

Some of the eLearning experts expressed their opinions as:

"... Do you really think the technical sciences, has something like education scenarios. (Igel: 164-165)"

"…Um, yes, um, the idea is much more a problem, technical sciences are the didactic approach. Um, because, um, technical sciences were growing, um, just for people, um, who has no real pedagogical, um, education. Um, that is so, we always, technical people, it is educating a technical people, that's a kind of different way to, um, teach something and there is no real didactical approach, no pedagogical issues so, that means you have to calculate, I'll show you on the blackboard how to run it and you have the result. (Ebner: 49-54)"

"…We have to, um..., to explain, or to-to, teaching and learning are different things. That how can we create learning. (Jahnke: 135-136)"

"...to find right methodology and to find medias for the learning goal. And, um, a big challenge of course in a practice, all the teachers, they are not experts so you have to explain them the possibilities they have and they have to decide what is the best for their learning goal for their teaching. (Krüger: 36-39)"

The benefit of learning technologies to improve teaching and learning is observed more in humanities and social sciences besides engineering sciences.

"… In my experience, the social sciences use more learning technologies, improvement of the quality teaching and learning, then, the computer sciences and informatics for example. (Igel: 25-29)"

Prof. Köhler, Dr. Ebner, and Prof. Jahnke accentuated that social sciences have less media competence and literacy in contrast to engineering sciences.

"…I think there might be some difference but the difference is not so much related to the, um, specific didactic concept, um, perhaps, technical teachers and technical subjects has. It's more related to some kind of, um, media competence, in understanding of media technologies, um, professors and/or teachers or lecturers in the technical subjects, um, may have." (Köhler: 24-27)

"…if I go to social sciences people are not able to make the content, to have not imagination about what they can do, yeah, because they see, oh, the computer is something like something would never need, umm, we need them for booking a flight or something like this, that and there is no imagination what technical computer can do and then, this is indeed a problem, ja" (Ebner: 67-72)

"…The challenge is for social sciences that they often cannot use the Web 2.0 tools. That is a problem in the social sciences. " (Jahnke: 144-145)

The subject-matter contextual differences are determined in three dimensions: content, context, and instructional technology. The compared outcomes revealed that the content and context of a subject-matter has an influence on the choice of instructional technology. Hence, collaborative and social tools (i.e. Web 2.0 applications) are favorite instructional tools preferred by humanities/social sciences' than engineering sciences' subject-matter contexts.

"…Um, when I talk to my colleagues, here, in Dresden University of Technology, I can see that also, um, also professor, um, in technical discipline is not really aware of having, um, the internet based technologies used in the sense of a Web 2.0, also, um, tool. So, fo-for them is the challenge to-to reflect upon a new type of social technology. (Köhler: 35-38)"

Document exchange through learning/content/knowledge management systems is the major implementation mode of eLearning in diverse subject-matter contexts. Although eLearning is still understood as unidirectional communication of teaching and learning materials, humanities/social sciences integrate more communicative and collaborative scenarios via instructional technologies offered by Web 2.0. In contrast, there are distinct eLearning applications developed by engineers in engineering sciences' subject-matter contexts; their purpose is to enhance visualizations and offer simulative experiences via virtual and remote laboratories. A unique difference of engineering sciences' subject-matter contexts from humanities/social sciences' subject-matter contexts is the deliberate development of essential instructional technologies by engineers. However, they hardly

reflect upon social technologies that embrace communication, collaboration, and critical thinking.

"…So, the decision, the way of the decision, is um, in social science and in technical sciences may be a difference, Social Sciences decide what university can offer and the technical people, the technical sciences decide it doesn't matter what university has because we can use Web 2.0 we can build it, we have our own server, we can install everything we would like to have… (Jahnke: 223-227)"

It is underscored that learners in both subject-matter domains use Web 2.0 applications for self-organization (i.e. manage group work, schedule meetings, organize deadlines, communicate, help each other, construct, develop, create and see the history of their product development) and self-study. Meanwhile, Dr. Wannemacher stressed the negative impact of obligation to use Web 2.0 applications determined by instructors and he added that learners prefer to use Web 2.0 applications when they discover a requisite. Indeed, Prof. Knipping pointed out the use of collaborative tools between learners.

"…Yeah. However, um, there is some use of collaborative like forums and so on, in the technical but not so much um, um, driven by the...um, teachers but just um, as in between the students. (Knipping: 97-98)"

Web 2.0 offer effortless teaching and learning environments for humanities/social sciences' subject-matter contexts where the media competency and media literacy levels are determined to be low. Nonetheless, the necessity for technical and organizational support would arise, if the intention is the use of sophisticated eLearning environments.

"…Um, on this, maybe a student again, computer science student who will support me in programming solutions... (Buchem: 427-428)"

"…Well, it's, it's, it's a support from someone whose um, doing it (laughing) ....using Moodle or something all the day may be um, and someone whose um, whose, um, um, there Didaktisch allefälle informiert ist. Also, nicht nur Technisch, sondern auch Didaktische Ideen hat, wo man über den Austausch Aufgaben möglicher weise formuliert oder bestimmte Dinge begleiten, betreuen kann, oder, oder, oder...Also, ja. (Müller: 245-249)"

The data collected from primary group of participants exposed that humanities/social sciences' subject-matter contexts are in favor of embedding learning managements systems (primarily), Web 2.0 applications such as social networks, podcasts, wikis, online learning communities, discussion forums, and web conferencing tools. Contrastingly, the

instructional technology preferences of engineering sciences' subject-matter contexts are underlined as learning/knowledge/content management systems (primarily) and virtual /remote laboratories to enhance visualizations and simulations. Furthermore, open educational resources stated to have an important role in engineering sciences' subject-matter contexts such as open videos of MIT and Khan Academy. Technology-enhanced learning is expressed as appropriate to any context dependent on the purpose of application.

The perspectives on eLearning practices has been rapidly changing, thus more scenarios are being introduced such as blended learning and technology-enhanced learning. Except document-exchange, eLearning experts indicated that blended learning is the recent scenario. Engineering sciences' subject-matter contexts benefit from eLearning services in terms of technology-enhanced learning. The self-developed instructional materials are not considerably designed according to pedagogical principles but they provide alternative environments for experimentation and project-based learning (i.e. simulations, virtual & remote laboratories). Not only engineering sciences, but also humanities/social sciences prefer to apply project-based learning aligned with eLearning. However, a few eLearning experts have pointed up the tendency of engineering sciences' subject-matter contexts where the classical lectures requested instead of eLearning, because they do not think that there is an urgency to operate on such environments.

"…with focus on the technical disciplines, you have more, something like lectures typical classical lectures one teacher one hundred students are sitting in the lecture hall hearing what the-the-the teacher is talking on and what's going on but less dialogue, and interaction…"(Igel: 80-83)

All eLearning experts agreed that communication and collaboration are core components of teaching and learning processes. Indeed, societal change has been creating a shift in education for every domain. Particularly for humanities/social sciences they have a worthwhile meaning.

"…the collaboration and communication is really important. Um, I'll say it as a, for the first time, we was beginning we launch self learning environment system that learning is, um, strictly focused on communication and discussion, um, and, um we have tools to support also communication through the, through, world wide web. And, um, yes, this so I think, um, one of the most important factors because learning occurs if you are communicating about a problem. But, it doesn't matter which study. (Ebner: 132-137)"

"…Yes. I think in social sciences, um, the communicative, communication process is much more important in large, so, I have the impression that they are more, um, um, that they are willing to use Web 2.0 applications,…" (Wannemacher: 63-65)

"…well, it's easy communication and um, collaboration, this is essential I think for, especially for social sciences,.." (Knipping: 192-193)

A half of the eLearning experts acknowledged that social forms do not differ with regards to any subject-matter context. Moreover, they indicated that it is the task of the lecturer to define social forms in conjunction with the purpose of the course. Nonetheless, Dr. Jenert and Prof. Knipping stated that learners do not like to be obliged to work individually or in groups.

Dr. Jenert introduced an organizational perspective and underlined that the potential differences between diverse subject-matter contexts' practice of eLearning might rely on individuals and institutions.

"…Either, I would say that in practice, um, a lot of differences are also determined by the institution, for example, the kind of higher education institution; the technical infrastructure, um, also, the money that, um, is provided by the institution or by the government or [inaudible segment] some money, so the budget considerations. So, I think... there might be an influence. So, it might be one, one variable but there might also be a lot of other variables that could be more important or that could also be important for individual case. (Jenert: 24-29)"

The instructors are remarked as major influencers and decision-makers of the course design in diverse subject-matter contexts which at the end might result in different eLearning practices.

"...So, what I would answer actually, it depends on the teacher in the technical sciences and it depends on the teachers in the social sciences if there are differences between e-Learning usages. (Jahnke: 26-27)"

Prof. Jahnke revealed a distinctive dimension between diverse subject-matter contexts practices of eLearning and she indicated that the instructional technologies offered by universities are preferred rather by humanities/social sciences' subject-matter contexts than engineering sciences' subject-matter contexts. The reason behind is explained by Dr. Ebner; he believes that humanities/social sciences' subject-matter contexts can neither imagine the extent of instructional technologies available, nor the potential integration of

those technologies into their contexts. Indeed, he emphasized considerably their competence on quality assurance in teaching and learning.

"Because they see, ah, the computer is something like something would never need, um, we need them for booking a flight or something like that, and there is no imagination what techni-technical computer can do and then, this is indeed a problem, yeah. And, of course, um, yeah, if I'm discussing with social science people, I have to discuss beforehand the didactical problem and, um, what's imagend, we have not discussed a problem, we have to the content, we have to, we can think out, what we can or how we can change it. But, there is, um, I think one or two years discussion about the didactical approach about the content, this is also senseless. (Ebner: 70-76)"

Major benefits of eLearning for humanities/social sciences' subject-matter contexts are listed as ease of networking, communication, online learning communities, activation of student groups, discussion, Web 2.0, active learners and courses, collaboration and cooperation, flexibility and mobility, simulations of case studies for project management classes, socialization of man, open educational resources, peer learning, opportunity for new instructional impulses, improvement of quality in teaching and learning, and ease of course organization (see Table 12).

"…On the other hand, if you have a look on current theories, for example, connectivism and other things, also to support working groups and the dialogue between teachers and learners. Especially, also, to-to connect typical classical learning management systems with Web 2.0 services and-and-um-um applications as wiki's, blogs, YouTube, iTunes, whatever you want to use, to help to-to-to build up something like learning community or an educational community, …this is in my opinion a specific aspect with a, um, specific focus in humanities and social sciences to have more, to have a stronger look on the or closer look on the, on working groups, yes? Or, the discussion or the dialogue between the peers, but also, between students and teachers and teachers and students… (Igel: 69-78)"

"....eLearning has the power for networking and communication, we do for discussing also online to bring people much more together. And, um, as I mentioned before this is not very powerful for technical sciences, in the first run, because I don't think it is a ...it is much more for social sciences. Because what they have to do, they have to discuss something, they have to communicate to comment something, um, something like that

and there are tools for collaboration, um, something like that and that's the most part behind... (Ebner: 59-64)"

The eLearning experts indeed evaluated the main challenges of eLearning for humanities/social sciences' subject-matter contexts; these are outlined as lack of technology competence, difficulties in using Web 2.0 tools, use of educational technologies offered by the higher education institution, lack of interpersonal communication and extra verbal cues, difficulty of creating simulative environments, comparison of eLearning with traditional learning (resistance to eLearning by traditional institutions), more discussion on design patterns than technology, and the eLearning paradox which is conceptualized by Dr. Jenert and Prof. Jahnke (i.e. a paradox between wide variety of educational technologies available and lack of design considerations) (see Table 12).

Table 12

eLearning Benefits and Challenges in Humanities and Social Sciences' Subject-Matter Contexts

eLearning in humanities/social sciences' subject-matter contexts	
Benefits	**Challenges**
• Communication & collaboration • Learning communities & networking • Active learner groups • Flexibility and mobility • Multi-channels of informations • New didactical impulses for constructivist scenarios • Quality improvement in teaching & learning • More dialogue & group-work • Simulative scenarios for project-based learning • Ease of course organization • Job training in the context and place where the learners perform their future jobs • Chance to get to know learners from different perspectives • Socialization of man	• Difficulty in handling technology • Use of educational technologies offered by the higher education institution • Consideration of capacities and resources • eLearning paradox • Unmotivated students • Complex and concrete structures of social sciences • Difficulty in realizing simulative scenarios and visualizations • Lack of interpersonal communication and extra verbal cues • Workload and time • Validity of Web 2.0 applications • Overall resistance against instructional technologies • The focus on didactical problem rather than learning object • Comparison of eLearning with traditional learning

"…The challenge is for social sciences that they often cannot use the Web 2.0 tools. That is a problem in the social sciences. (Jahnke: 144-145)"

"…Um, yes, it is a ... the other way around. That means if you have learning objects, also (German), if I go to social sciences people are not able to make the content, to have not imagination about what they can do, yeah? (Ebner: 66-68)"

"…Um, well, for the social sciences, it is still a tricky issue to-to handle technology so, I would say...most of the younger colleagues are quite curious about technology but still, some-some hesitation about technology,… (Köhler: 52-54)"

"…Um...well, general, it is not only for social sciences but well, it-it stronger in social sciences, so, um, I think um, the...um, with all these communication um, heavy use of eLearning, um, of course communication is different online, you don't have direct contact, you don't have so much um, mimics and gestures, and, stuff like that and other forms of communication… (Knipping: 71-73)"

The benefits of eLearning in engineering sciences' subject-matter contexts are accentuated as the power of visualizations, flexibility and mobility, ease of creating remote and virtual labs, the chance for improvement of quality in teaching and learning, easy access to learning materials, lecture recordings, simulations, open educational resources, collaboration, reflection, keeping up with technological improvements, independent teaching and learning activities, and creation of an added value. Contrarily, main challenges are highlighted as weak pedagogical considerations on how to implement eLearning, hard to reflect upon a social technology like Web 2.0, understanding of eLearning only from a technical perspective, requisite for training about eLearning (particular focus on "learning design" is required), high production costs, time constrains, comparison of traditional learning with eLearning, focus on research rather than teaching, less dialogue and interaction, and the eLearning paradox alike in humanities/social science' subject-matter contexts (see Table 13).

"…Yes. I would say that there are two benefits. One benefit is, in the when the e-learning application made in a good way in a direction of a game-based learning course,...or a simulation, for example,...one can experiment a lot of things in technical science with e-learning... (Reinhardt: 102-107)"

"…But one is the, flexibility and time,... (Niegemann: 34)"

"…it/it is not important to go to to laboratory and make a experience or something,...but...it/to/to stay at home and do things in front of your computer and have simulations and have the same results as in a, yeah, real situation... (Preussler: 40-43)"

"…So what will e-Learning, this is a benefit for production engineering because we created with Moodle, we created, Moodle was just one access, we created communications rooms and laboratories so that students needs to go to that lab, to create, um...., an experiment to watch that experiment, to make some hypothesis and to explain and to discuss the results of other students. So one benefit in Web 2.0 eLearning is, it is really really easy to create such laboratories and access to such laboratories... (Jahnke: 114-119)"

Table 13

eLearning Benefits and Challenges in Engineering Sciences' Subject-Matter Contexts

eLearning in engineering sciences' subject-matter contexts	
Benefits	**Challenges**
• Power of visualizations • Flexibility & mobility • Remote / virtual labs • Simulation • Open source • Open Educational Resources (OERs) • Ease of document exchange • Keeping up with technologies • Added value • Chance to get to know learners from different perspectives • Meeting the demand of high ranked subjects	• Lack of didactical considerations • Hard to reflect upon a social technology such as Web 2.0 • Understanding of eLearning only from a technological perspective • Higher costs of production • Time constrains • Decreasing number of learners attending courses in classroom • Comparison of eLearning with tradition learning • Intellectual property rights • Lack of personal interaction • Technical challenges

It was demanded from eLearning experts to define the extent of potential features of an eLearning environment solely designed for humanities/social sciences' subject-matter contexts. Accordingly, the listed features are as following:

- A Facebook similar environment where the communication and information exchange with other individuals is facilitative. Indeed, the individuals can be connected with each other that enable networking. The determined environment should offer flexibility and mobility for instructors and learners.
- An e-portfolio system to keep track of personal growth of learners.

- A personal manager or coach available who is an expert in the specific subject-matter to provide support to learners.
- Integration and convergence of cooperative tools like mind manager, content mapping or audio and/or video conferences, wide variety of Web 2.0 applications such as the use of wikis and blogs to provide collaborative spheres for teaching and learning.
- An opportunity to realize new educational scenarios.
- The development of new interfaces for learning management systems to enhance their usability alike in effortless Web 2.0 and AJAX.

Two eLearning experts highlighted that there is no need for a big environment, system, or additional tools in humanities/social sciences' subject-matter contexts.

If a new eLearning environment have to be developed solely for the use of engineering sciences' subject-matter contexts; eLearning experts underlined that it should:

- have some more features on the technical function of visualizations,
- be operated from one platform with the help of plug-ins,
- be integrated virtual/remote labs,
- improve the efficacy of teaching and learning processes and facilitate document exchange.

Dr. Ebner stated that to create an eLearning environment just for the use of engineering sciences' subject-matter contexts would be considerably challenging because of their sophisticated structures.

It is approved that there are certain characteristics of diverse subject-matter contexts, specifically, of humanities/social sciences and engineering sciences. The most obvious difference was observed in the choice of instructional technology. Content and context are highlighted as determinants of the decision on instructional technology, thus the eLearning practices of diverse subject-matter contexts dissociate from each other.

Although a high level of eLearning is not put into practice and the document exchange is the major mode of eLearning, humanities/social sciences' subject-matter contexts are on behalf of integrating educational technologies that emphasizes communication and collaboration (i.e. Web 2.0) and engineering sciences' subject-matter contexts deliberately develop technologies in order to enhance visualization and simulation. However, the unbalanced media competency and literacy levels between diverse subject-

matter contexts discourage humanities/social sciences' subject-matter contexts to use more sophisticated eLearning environments, thenceforth they are obliged to use the potential technologies that the higher education institution offers. Moreover, the engineering sciences' subject-matter contexts hardly reflect on the social technology primarily because of the characteristics of their content and context. In addition, design of a course to improve the quality in teaching and learning is embraced by humanities/social sciences' subject-matter contexts besides the engineering sciences' subject-matter contexts in which the crucial focus is on research than on teaching.

The results acknowledged that the differences on offline learning environments are indeed apparent on online learning environments. In the primary evaluation, the extent of those differences is superficially expressed within a more theory-oriented approach. The details of those differences are further discussed with regards to the secondary group of interviews (i.e. practice-oriented approach) and synthesized with the conceptual framework of eLearning instruction in diverse subject-matter contexts.

4.2. In-depth interviews with the secondary group of participants "instructors": A practice-oriented approach toward eLearning practices of diverse subject-matter contexts

Instructors from humanities/social sciences' and engineering sciences' subject-matters identified the eLearning course(s) they have conducted in certain subject-matter contexts. An open-ended question is asked at the beginning encouraging them to describe one of their eLearning course(s) in detail; independent from any limitations. Afterwards, the interviewer has narrowed down the questions to content, aim/objective, instructional idea, eLearning scenarios, tools, communication and collaboration, social forms, and evaluation.

In the framework of the instructors' descriptions, the theoretical rather than practical type of content is found to be predominant type that is applied in conjunction with eLearning practices of both subject-matter contexts. Nonetheless, some lecturers stated that they apply both theoretical and practical content indeed a few mentioned that they use eLearning only for practical content.

Blended learning approach is initiated as the main objective to implement eLearning in both subject-matter contexts. Furthermore, document exchange is identified as an eLearning activity in both subject-matter contexts. The instructors believed that document exchange over learning management systems is a kind of eLearning application. A few

instructors stated that they used solely a learning management system to exchange documents in terms of eLearning. Indeed, some of them accentuated that document exchange over a learning management systems facilitated the course organization. Engineering sciences' subject-matter contexts essentially benefitted from document exchange for the aim of self-study.

Humanities/social sciences' instructors underlined that their aim to adapt eLearning is to support creative knowledge construction, theory application to practice, content management, link lists of resources, organization of social forms, flexibility, job training, and reusability of learning objects. In contrast, engineering sciences' instructors highlighted that their aim to practice eLearning is to enable limited number of instructors in a specialized topics to a broader population of learners, self-study, activation of learners, substitution of lectures via virtual classrooms, and power of visualizations (see Appendix for Codebook Categories and Subcategories: Humanities/Social Sciences' Lecturers).

Cognitive, constructivist, social constructivist, and social learning theories/epistemologies are mentioned as major epistemologies integrated into eLearning environments in humanities/social sciences' subject-matter contexts. Moreover, behavioral, cognitive and barely constructivist learning theories/epistemologies are accentuated as considerable epistemologies behind eLearning practices of engineering sciences' subject-matter contexts.

Although blended learning is the main eLearning scenario in both subject-matter contexts; collaborative learning, discussion-based learning, self-reflective learning, project-based learning, self study, task-based learning, query-based learning, psycho-drama, group-based learning, tutoring, and consulting with more emphasis on problem-based learning seem to be the most used eLearning scenarios when the instructional strategies of humanities/social sciences contexts are regarded.

In contrast, self-study, lecture recordings, project-based learning, and seldom collaborative learning are mentioned eLearning scenarios of engineering sciences' subject-matter contexts. Nonetheless, most of the instructors emphasized significantly that the document exchange is broadly applied as a main eLearning scenario; this is a controversial view of eLearning which is discussed within the conceptual framework of eLearning instruction in diverse subject-matter contexts.

It is remarkable that social sciences' subject-matter contexts are practicing several different eLearning scenarios/teaching and learning activities than engineering sciences' subject-matter contexts alike the statements of eLearning experts whereby they accentuated that engineering sciences' subject-matter contexts do not considerably integrate pedagogical principles into their teaching and learning practices.

Learning Management Systems (LMSs) are employed broadly as an eLearning technology/tool in both subject-matter contexts. Thus, the acceptance of document-exchange as an eLearning scenario can be figured out. Nevertheless, effortless tools of Web 2.0 such as wikis (for collaboratively writing), forums (for discussions & construction of knowledge) and blogs (individual or group) were practiced in most cases by social sciences' subject-matter contexts, particularly in the subject-matter contexts of digital media, eBusiness, and journalism whereby job training is a major objective for future professionals. Mash-ups of Web 2.0 applications were in the focus of humanities/social sciences' subject matter contexts. Furthermore, plug-ins in LMSs such as discussion forums, chats and wikis for communication purposes and surveys (e-test) are mentioned but applied seldom to test knowledge levels.

Although, the outcomes of primary group of interviews underlined that engineering sciences' subject-matter contexts deliberately develop tools when it is necessary and social sciences' subject-matter contexts integrate instructional technologies offered by higher education institutions, there were one instructor from humanities/social sciences' subject-matter context "philosophy" who developed an instructional tool solely for his teaching and learning purpose. Prof. Betz in his course "Descartes Meditations" developed an own argumentation application to keep track of arguments of students and demonstrate them in argumentation maps where self-reflective learning is at the core. This course is an exceptional course; however, it acknowledges that the choice of instructional technology is indeed dependent to the motivation and vision of the instructor; alike the statement of Prof. Jahnke whereby she stressed that the different practices of eLearning is dependent on abilities, skills, and preferences of the instructors/lecturers.

"...So, what I would answer actually, it depends on the teacher in the technical sciences and it depends on the teachers in the social sciences if there are differences between e-Learning usages. (Jahnke: 26-27)"

Engineering sciences' subject-matter contexts make use of lecture recordings and a few types of Web 2.0 such as the Wikipedia and other wikis to provide flexibility in time and place and an environment for self-study. The use of wikis (either integrated in LMSs or self-developed) primarily enable the exchange of documents and secondarily establishe a space for discussion. However, a wiki allows limited use whilst the engineering sciences' subject-matter contexts are based on factual knowledge, formulas, and calculations where students cannot construct additional information upon outcomes (Ebner: 18-21; Knipping: 22-29).

Remote/virtual laboratories are indeed mentioned as examples of best-practice; however, none of the instructors indicated any use case. A self-developed tool was mentioned by Prof. Lange "Emargo" which is a knowledge management software (cf. Lange: 32).

Almost all instructors from humanities/social sciences' subject-matter contexts underlined that e-mail lists and dissemination of news and events through learning management systems is a good possibility that eLearning enables for them. However, this kind of an activity is merely a course organization over technologies in practice rather than eLearning. Online communication in both subject-matter contexts are realized through LMSs and the either internally or externally developed wikis, indeed offline communication is favorable in engineering sciences' subject-matter contexts rather than social sciences'. Social forms (individual and/or group work) are embraced in both subject-matter contexts independent form contextual characteristics but dependent on the instructors and learners.

Instructors underlined that they usually evaluate the student learning performances in traditional settings. Only a few instructors stated that they evaluate students' success or failure dependent on their performances within an eLearning environment (see Appendix for interview transriptionof Prof. Dr. Betz).

The benefit and challenges are asked to instructors with regards to their subject-matter domain. Nonetheless, there were no clearly remarked benefits or challenges mentioned by more than two instructors, thus each instructor stated some benefits or challenges according to their own experiences. For instance, the importance of communication, collaboration, and flexibility in time and space in the subject-matter context of humanities/social sciences were outlined as major benefits of eLearning; in contrast, lack of interpersonal communication and extra verbal cues were accentuated as challenges of

eLearning by both group of interviews. Lack of media competence and media literacy in social sciences' subject-matter contexts were not connoted by instructors. Meanwhile, Dr. Betz indicated that there were some technical challenges ten years ago; recently, the learners are more technology competent. In addition, it is revealed that junior academicians are more competent than senior academicians.

The possibility to improve teaching and learning activities, advantage of lecture recordings, flexibility, and mobility are underlined as major benefits of eLearning in engineering sciences' subject-matter contexts by both group of participants. However, they respond considerably distinct to the question of potential challenges. The lack of pedagogical approaches in engineering sciences' subject-matter contexts were not mentioned by instructors. The extent of mentioned challenges was identified with the unique challenges of eLearning.

The instructors are asked to evaluate the attitudes of instructors toward eLearning in their specific subject-matter context. Their statements acknowledged that engineering sciences' instructors are not actively engaged with eLearning; but the learners demand frequent use of eLearning in their studies. Moreover, Prof. Lange indicated that the passive use of eLearning is because of the reason that the instructors in Germany prefer to do research over teaching.

"…Yes, in Germany, teaching is not major point of interest. Of course, teaching and research are important, but they give more emphasis on research. Because research success and development and research is accepted more in the community. You get research funding, if you have good ideas for research projects you get research funding and all that. And, in teaching, if you are good in teaching that is supposed to have but it is not as important as in research. (Lange: 203-207)"

This argument was also remarked by Tanja Müller working in humanities/social sciences' subject-matter context. She underlined that doing research instead of teaching deserves more reputation in German higher education and academicians get rewarded if they improve research rather than teaching regardless the subject-matter context.

"…And, until this point, teaching students is especially in Germany, um, still a point which is not so, um, um, um, if you don't get so much reputation from teaching students rather than you get it from doing research doing all the best in research and not in teaching, so first this one, then, um, when you um, when this is recognized may be, you can say, okay teaching students is um, um, as important as doing research then all this

teachers have to have a, much more didac-didactical knowledge than they have at the moment or they can prepare their classes, in a different way may be. (Müller: 410-415)"

Prof. Betz highlighted that humanities/social sciences instructors' usually integrate tools that are provided by the university and those are consistently applied for the purpose of course organization alike previously indicated by Prof. Jahnke.

"...I think um, really I tend to say...most...most...of my colleagues are using eLearning platforms that are provided by the university. For, in order to organize their seminars and their courses, to have an e-mail list of all the students who attend the seminar to, um, upload documents and so on, so that's very widely used. But beyond...this organizational use, it's hardly employed at all. (Betz: 242-248)"

Prof. Buchem underlined that the practice of eLearning ranked significantly high in digital media studies. Accordingly, she categorized the attitudes of instructors toward eLearning into two within social sciences' subject-matter context: instructors who embrace technologies and instructors who are doubtful. Furthermore, Dr. Eisner emphasized the significance of eLearning practices in humanities/social sciences' subject-matter context and added that one cannot conduct sophisticated instructions without these instruments. According to him, senior professors remain distant to emerging technologies. Tanja Müller accentuated that a half of instructors/lecturers are active and support the use of eLearning and the other half use eLearning for document exchange. Nonetheless, humanities/social sciences' instructors are stated as having a tendency to experiment eLearning technologies whilst the university does not support their individual practices they are obliged to further use what university offers. Eventually, the range of instructional technologies that universities offer is often ineffective and inefficient (see Appendix for interview transcription of Prof. Dr. Isa Jahnke).

It is highlighted that engineering sciences' subject-matter contexts prefer to practice eLearning mainly in the framework of document exchange. Although the significance of visualizations and simulations of experiments are mentioned broadly in these contexts, their practice is rather low. Furthermore, the instructors are observed to be passive and they often question the added-value of eLearning instruction to their subject-matter context. Quality assurance in teaching and learning in engineering sciences' subject-matter contexts are not considerably in focus alike in humanities/social sciences' subject-matter contexts, therefore the requisite for a change is neither desired nor expected.

Only two instructors engaged in engineering sciences' subject-matter contexts outlined their ideas of a new eLearning environment precisely designed for their subject-matter context. Prof. Lange indicated that they have enough resources for the realization of eLearning and there is no need for such an environment in structure, steel, or civil engineering. Additionally, Dr. König outlined that Moodle and the offerings of the university is enough to accomplish eLearning. Even if the offerings of the university are not satisfying, Dr. König stated that they would develop their own tools such as the wiki they have developed and set it up according to their needs alike to the statements of eLearning experts.

The major use of eLearning by both subject-matter contexts is for document exchange and course organization purposes. Only a few lecturers try to bring new insights to eLearning in their own subject-matter domain. Although there is enormous number of emerging technologies, the practice of eLearning with interdisciplinary and/or trans-disciplinary connections is even not accomplished which is indeed underlined by eLearning experts, namely the "eLearning paradox".

eLearning is still perceived as an empowering technology for the transfer of informative material to learners. However, this represents a preliminary understanding of eLearning as a tool for the conveyance of information throughout a data system. eLearning refers more than the conveyance of any information to a target population. It introduces emerging technologies into traditional teaching and learning environments; meanwhile, new instructional strategies are indeed established to drive those technologies and enhance the quality of teaching and learning. Thus, the features and requisites of the contemporary era integrated into education with the help of the developed instructional strategies such as the theory of "connectivism" developed by George Siemens and Stephen Downes as the driver of cMOOCs. eLearning reconstructs itself in conjunction with rapid proliferation of emerging educational technologies. It is literally an educational phenomenon of the late 20^{th} and 21^{st} century.

4.3. A conceptual framework of eLearning instruction in diverse subject-matter contexts

The conceptual framework of eLearning instruction guided the development of instruments in both group of participants. Indeed, some items of the semi-structured qualitative survey of secondary group of participants are revised in conjunction with the outcomes obtained from primary group of participants. Eventually, all outcomes analyzed

and synthesized in the developed conceptual framework of eLearning instruction in order to build a holistic understanding and create a meaning from the outcomes.

The ingredients of initially developed semi-structured qualitative survey of eLearning experts involve two major dimensions of the conceptual framework of eLearning instruction: subject-matter context and ID patterns & emerging technologies. It focused superficially on contextual differences and their influence on eLearning practices in order to understand the emerging phenomenon. After the completion of primary phase of data collection, the qualitative survey of instructors/lecturers is developed regarding all dimensions of the conceptual framework of eLearning instruction.

The outcomes of primary group of participants were considerably theoretical toward the eLearning practices of diverse subject-matter contexts, thus there were differences between the outcomes of primary and secondary group of participants whereby more practice-oriented experiences were obtained from instructors/lecturers.

There are differences found in eLearning practices of diverse subject-matter contexts; between the practices of humanities/social sciences' and engineering sciences' subject-matter context. Thus, the requisite to design eLearning environments in conjunction with the scaffold of subject-matter contexts aroused.

The conceptual framework of eLearning instruction is a new design pattern for eLearning instructions dependent on subject-matter contexts and adult learning principles. It follows a non-linear approach in designing instruction strongly attached and emphasizes the importance of "autonomous learning". Learning strategies, phases of the learning process, content, the learner, and the environmental factors of the context constitutes the four major dimensions of the framework: subject-matter context, adult learners, ID patterns and emerging technologies, and the criteria of success (see Figure 10).

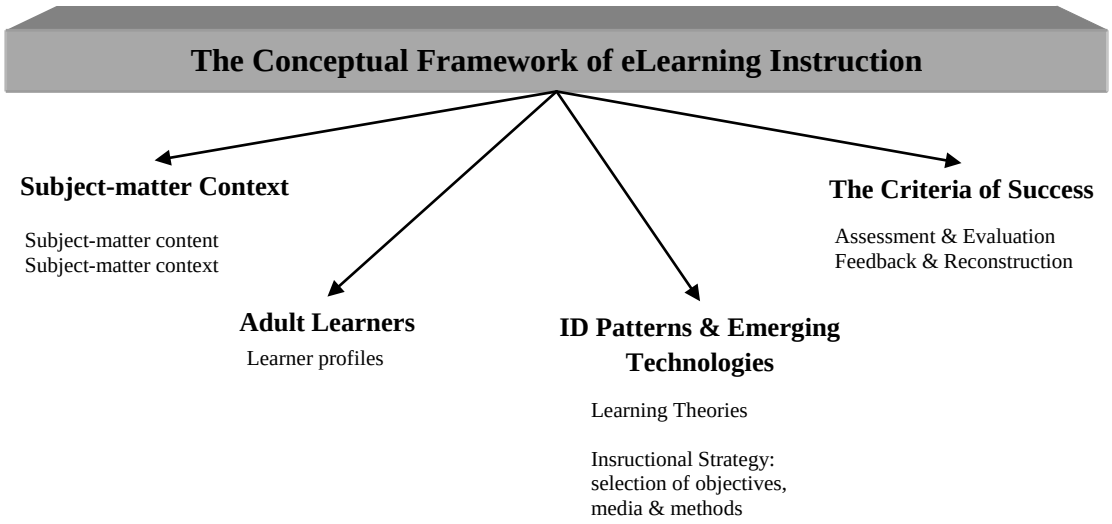

Figure 10. The conceptual framework of elearning instruction in diverse subject-matter contexts

Instructional design (ID) patterns and emerging technologies involving the criteria of success densely guided the flow of this research study (particularly the development of qualitative surveys) with regards to subject-matter context and adult learners from theory- / and practice-oriented perspectives.

Eight design categories evolved that credit to literature review of educational design theories and models and the developed conceptual framework of eLearning instruction (see Table 14).

The design categories are flexible but meanwhile they are interconnected and following a non-linear approach. All categories of design patterns are created with reference to the subject-matter content, context, the problem, and adult learners.

The conceptual framework of eLearning instruction is a an umbrella conceptualization that focuses on the theory of eLearning instruction (instructional design patterns and emerging technologies) in order to obtain efficient and effective learning outcomes/performances (the criteria of success) from the target group (adult learners) within specific contexts (subject-matter contexts); and it is primarily designed according to andragogy.

Table 14

Eight Design Categories of the Conceptual Framework of eLearning Instruction in Diverse Subject-Matter Contexts

Design Categories	Description
Subject-matter content and context	Analysis of subject-matter content and context; statement of the problem; assurance of adult learners' competency levels for autonomous and self-directed learning environments.
Aim	Definition of course aims and objectives with regards to the determined problem.
Learning theory	Embed of an appropriate learning theory which will guide the overall eLearning instruction and the developed instructional strategy.
Scenarios/Methods	Determination on the extent of available scenarios and methods considerably dependent to subject-matter content, context, the problem, and the adult learners.
Technologies	Integration of suitable instructional technologies to scenarios and methods.
Social forms	Provision of potential social forms and giving learners the freedom to work in either
Communication and collaboration	Design of communication and collaboration between the instructor and the learner, between learners, and between the learner and the content.
Evaluation and feedback	Decision on the extent of learner assessment in several forms in conjunction with the all categories; particularly, the subject-matter content, context, scenarios/methods, and tools. Envision of forms of feedback and channels for learners and their evaluation.

The design categories are synthesized with the research outcomes; thenceforth the consolidation of research outcomes from primary and secondary group of participants demonstrating the theory-/ and practice-oriented analysis of eLearning instruction in diverse subject-matter contexts with the conceptual framework of eLearning instruction established an emergent model for eLearning instruction in diverse subject-matter contexts; specifically in humanities/social and engineering sciences.

eLearning is recognized as a potential environment for theoretical content dissemination over a learning/content/knowledge management system to a great variety of learners. Thus, document exchange is authorized as the major scenario for eLearning

instruction. It is clear from the obtained outcomes that only a few instructors adapt sophisticated eLearning scenarios to provide solutions for their instructional problem and the others overwhelmingly practice eLearning in the mode of document exchange and course organization.

The use of simplest technologies for document exchange and course organization might have aroused from the inadequate number of active instructors who are not interested in integrating emerging technologies into their teaching activities to increase the quality in education. Although the adaptation of emerging technologies is enthusiastically embraced by learners, it is more often negatively received by academicians (Rolfe, Alcocer, Bentley, Milne, & Meyer-Sahling, 2008). The study of Rolfe et al. (2008) investigated the attitudes of academics toward eLearning across both the arts and sciences in order to understand completely the reasons why educators fail to benefit from technology-driven opportunities. They found out that the eLearning awareness levels of instructors working in schools of Politics, American Studies, Medicine, Nursing, and Bioscience demonstrate differences; in fact, they underlined that a sophisticated eLearning practice is not put into practice, yet. Eventually, the results revealed that the interviewed academics (n=36) did not have a solid idea about the extent of eLearning and/or the range of educational technologies involved. The need to generate and promote eLearning in diverse subject-matter context is aroused in order to augment the awareness levels of academics. The findings of this dissertation are similar to the findings of the study developed by Rolfe, et al. Thus, the preliminary use of eLearning as document exchange and course organization (eLearning 1.0[6]) in both subject-matter contexts could be associated with the instructors' level of eLearning awareness and imagination that is indeed accentuated by Dr. Ebner and Prof. Dr. Jahnke (see Appendix for interview transcriptions of Prof. Dr. Isa Jahnke and Dr. Martin Ebner).

The range of eLearning technologies (modes of eLearning) is outlined from unsophisticated to sophisticate. The preliminary modes of eLearning practices involve simple provision and organization of course content throughout mailing lists, websites, file transfer protocols, and content/knowledge/learning management systems. The use of e-mails constitutes the initial forms of communication whilst learning with technologies.

[6] Initial practices of eLearning that often rely on course organization and exchange of documents; similar to Web 1.0.

These were very linear and one-directional. However, the integration of specific plug-ins (discussion forums, wikis, and chat rooms) into learning management systems enabled participative asynchronous or synchronous communication between the instructors and learners, and between learners.

Several commercial and non-commercial learning management systems are being developed and installed as major eLearning systems. Nonetheless, they are standard systems offered as an opportunity for each subject-matter context within a higher education institution regardless the culture of each domain. Meanwhile, Web 2.0 was already put into practice and a shift has happened from web 1.0 “non-participatory web” to Web 2.0 “participatory web”. Communication, collaboration, networking, and collective action are being fostered with the introduction of Web 2.0. Huge information chunks are being created and linked with each other. Applications are developed that have effortless user interfaces. Eventually, wide varieties of information become available for masses. Indeed, eLearning 2.0 is conceptualized and put into practice.

eLearning 2.0 brought a new dimension to the field of education whereby autonomous teaching and learning is being encouraged (cf. Mayrberger, 2008). Such technologies proliferate rapidly and new enhancements are being constructed upon previous ones; thus more sophisticate eLearning scenarios are emerged. The invention of further emerging technologies are influencing the way of teaching and learning continuously such as mobile learning, immersive worlds, open educational resources, and massive open online courses. These technologies are narrowing down the gaps of social presence, lack of communication and collaboration, media competence, and digital literacy.

The major practice of eLearning (document exchange and course organization) elaborated from the outcomes of this dissertation is an unsophisticated practice of eLearning that dominate both engineering sciences’ and humanities/social sciences’ subject-matter contexts (i.e. eLearning 1.0). Although the wide range of technology-driven opportunities accessible for education, the instructors fail to reflect upon those to increase the quality of their teaching. Rolfe et al. (2008) investigated the extent of instructors fail in order to understand the reasons why more in-depth. It is revealed in their study that there was a lack of awareness regarding eLearning and some academics were more focused on research than learning activities.

Biglan’s taxonomy of academic disciplines disclosed that soft sciences prefer teaching over research and hard sciences just the contrary (cf. Smith et al., 2008) whilst soft

sciences are significantly interested in pedagogical enhancement of teaching rather than hard sciences (see Appendix for interview transcriptions of Prof. Dr. Isa Jahnke and Dr. Martin Ebner). Nonetheless, Tanja Müller and Jörg Lange (secondary group of interviewees) indicated that the preference of research over teaching is context-free in German higher education and the instructors get rewarded if they enhance their research than their teaching that is indeed underlined in the study of Rolfe et al. (2008). Thus, it prohibits the practice of more sophisticated eLearning scenarios in higher education.

The senseless comparison of eLearning with traditional learning environments envisages instructors to a dead-end, rather than widening their spectrum of potential sophisticated eLearning applications with reference to current situation in both scientific contexts. Emerging technologies has been influencing the socio-political structures of a society. Indeed, in order to integrate those technologies into current systems, new design patterns that reference to previous ones and critically constructs upon them are extremely required. Existing systems have their own ancestry for centuries; meanwhile emerging technologies bring new characteristics (i.e. features, insights) into current systems. If the intention is the convergence of both in one practice, mutual understanding is compulsory to discover new dimensions and insights in current systems that would enable the functionality of emerging technologies. Therefore, strong adherence to traditional learning environments would prohibit the discovery of brand-new landscapes for action.

Different schools are found to have significantly variable attitudes toward eLearning that might have aroused from the subject speciality itself. Subjects that are based on diagrams and processes rather than analysis and discussion are accentuated as considerably ready to practice eLearning. However, the academics do not have a clear definition of eLearning in their mind. Some agreement is achieved that eLearning refers to the use of electronic means to facilitate learning (Rolfe et al., 2008). The “e” in eLearning does not have some nice connotations particularly for humanities/social sciences (see Appendix for primary group of interviews). Moreover, low level of media competence and literacy underscored by eLearning experts might express the extent of the instructors’ resistance toward using emerging learning technologies in humanities/social sciences’ subject-matter contexts.

There is no common understanding of eLearning across diverse subject-matter contexts. The lack of a clear definition of eLearning disables the broader application of an eLearning strategy with academics that do neither share a common understanding nor a

uniform vision (Rolfe et al., 2008). Thus, the confusion arouses from the identification of eLearning either as a technology or a completely designed educational scenario with potential technologies in practice. This confusion often ends up with approval or rejection. However, the use of technology in engineering sciences' subject-matter contexts whilst teaching and learning is prevalent since the emergence of the scientific domain. Teachers and learners are significantly engaged with technologies in practice. Nevertheless, the pedagogical design principles are not essentially underscored by engineering sciences' subject-matter contexts. In other words, they are unconsciously involved with educational technologies. In contrast, social sciences' subject-matter contexts are not alike involved with potential educational technologies based on the characteristics of the subject-matter domain. They are critical toward the use of educational technologies. Strong discourses on instructional design patterns are significantly influencing the integration of eLearning in humanities/social sciences' subject-matter contexts, questioning whether educational/instructional technologies improve the quality of teaching and learning or not. Thus, evidence-based practice is considerably common. In contrast, engineering sciences' subject-matter contexts considerably emphasize the use of innovative "technologies" rather than educational design (see Appendix for interview transcriptions of Dr. Ebner and Prof. Dr. Isa Jahnke).

Although the major research outcome of this dissertation indicated that both engineering sciences' and humanities/social sciences' subject-matter contexts prefer to use "document exchange" and "course organization" as a practice of eLearning, there are distinct practices of eLearning that are being improved throughout the rapid proliferation of emerging technologies in education and the augmented awareness levels of stakeholders. For instance, humanities/social sciences' subject-matter contexts aim to use eLearning as a method for job training, self-reflection, and support of creative knowledge construction whereby the considerable emphasis is given on communication, collaboration, networking, and reflection in order to guide students in improvisation of their analytical and intellectual skills dependent on their subject-matter context. Contrarily, engineering sciences' subject-matter contexts practice eLearning to support self-study.

Enormous number of emerging technologies arouse each day that offer opportunities for teaching and learning in diverse organizations and subject-matter domains. However, available "DRIVERS" (potential design patterns) that enable the practice of those

technologies are significantly low with regards to the velocity of recently introduced technologies. This dilemma is called as “eLearning paradox”. The eLearning paradox is frequently mentioned in the primary group of interviews (see Appendix for interview transcriptions of Prof. Dr. Isa Jahnke and Dr. Klaus Wannemacher). Furthermore, there are organizational and technical barriers that are limiting the practice of eLearning. For instance, the preference of research over teaching, the angst to be replaced by technologies, the provision of additional workloads, the lack of technology competence and literacy, the eagerness to work within the comfortable boundaries (Rolfe et al., 2008), higher costs of organization and production, and uncertainty in intellectual property landscape (Bacow, Bowen, Guthrie, Lack, & Long, 2012) are to name some. These issues are indeed addressed in the framework of this dissertation by eLearning experts and academics from diverse subject-matter domains.

Except the major use of eLearning in its simplest form of document exchange and course organization, a few distinctive practices are captured in humanities/social sciences’ rather than engineering sciences’ subject-matter contexts. Learning theories based on constructivism, social constructivism, and social learning guided the flow of course design in distinctive eLearning practices of humanities/social sciences’ subject-matter contexts; behaviorism and cognitive psychology are adapted occasionally. However, they are observed significantly in eLearning practices of engineering sciences’ subject-matter contexts where constructivist epistemology is rarely amalgamated.

The decision on epistemological backgrounds embedded into eLearning environments determined the selection of scenarios, methods, tools/technologies, forms of communication and collaboration, and social forms; particularly the “ID and emerging technologies” dimension of the conceptual framework of eLearning instruction in diverse subject-matter contexts. Thus, the obtained outcomes from both group of interviews demonstrated that in humanities/social sciences if constructivist learning theories are embedded into eLearning environments, problem-based learning, project-based learning, discussion-based learning, collaborative learning, and self-study learning scenarios are adapted subsequently whereby group work is principally embraced. Moreover, communication and collaboration are conducted through multi-channels encouraging huge masses of participants to interact with each other asynchronously or synchronously (see Table 15).

Table 15

Practice-Oriented Approach toward eLearning Practices in Humanities/Social Sciences' and Engineering Sciences' Subject-Matter Contexts

Design Categories	Engineering sciences' subject-matter contexts	Humanities/social sciences' subject-matter contexts
Subject-matter content and context	Factual content structures Experiment-based learning Need for evidence	Analytical content structures Discussion-based learning Need for interpretation and construction of a meaning
Aim	Document exchange Technology-enhanced learning Self-study	Document exchange Blended learning Technology-enhanced learning Job training Self-reflection Support of creative knowledge construction
Learning theory	Behaviorism Cognitivism	Constructivism Social constructivism Social Learning
Scenarios/Methods	Document exchange Self-study Project-based learning	Document exchange Collaborative activities on Web 2.0 or LMSs Problem-based learning Discussion-based learning Project based learning Self-reflective learning
Technologies	LMS Open educational resources-lecture recordings/eLectures Web 2.0 (rarely) Self-developed tools	LMS Web 2.0 (frequently) Self-developed tools (rarely)
Social forms	Both individual and group work dependent on the choice of instructor and learners; however, more emphasis on individual-work.	Both individual and group work dependent on the choice of instructor and learners; however, more emphasis on group-work.
Communication and collaboration	Non-participative	Participative
Evaluation and feedback	Offline Rarely online through LMS (eAssessment)	Offline Rarely online through essays on LMSs, individual ePortfolios, and group work on weblogs

The tools or technologies the humanities/social sciences' subject-matter contexts prefer in order to foster their instructional scenario are LMSs that is offered by the higher education institution and the Web 2.0 applications; however, self-developed tools or

technologies are seldom, alike in “Argumentation Software” developed by Prof. Betz (see Appendix for interview transcription of Prof. Dr. Gregor Betz). If more behaviorist and cognitive learning theories are integrated into eLearning environments alike in engineering sciences’ subject-matter contexts, one-dimensional scenarios/methods such as lecture recordings and document exchange are embraced where individual work and occasionally group work is adapted. Non-participative communication and collaboration that is asynchronous and unidirectional dominate interaction. Furthermore, LMSs are the major tool/technology that is endorsed by engineering sciences’ subject-matter domains; in fact open educational resources, Web 2.0 (i.e. wikis, lecture recordings), and self-developed tools (i.e. wikis) are seldom integrated.

The criteria of success on eLearning environments measured through formative and summative evaluation which is principally conducted on offline environments and rarely via LMSs (quiz, test, eAssessment). In project-based learning, social sciences’ subject-matter contexts evaluate learning performances of groups through active participation on Web 2.0 environments (ePortfolios and blog entries, discussion and knowledge construction in forums and wikis).

Literature review on eLearning practices in different subjects revealed more interactive and constructive scenarios in practice. Thus, experience reports are reviewed in order to create an additional overview of eLearning practice in diverse subject-matter contexts (see Appendix for summary of experience reports).

The review of experience reports represents ten case studies from humanities/social sciences’ subject-matter contexts and three case studies from engineering sciences’ subject-matter contexts. The use of LMSs are almost current in every case study regardless the subject-matter context as the platform for course organization that is subsequently used for knowledge and information management. Evident to this dissertation, Web 2.0 technologies are commonly used in humanities/social sciences’ rather than engineering sciences’ subject-matter contexts. Blended learning and self learning constitutes the major eLearning scenarios and methods of humanities/social sciences’ subject-matter contexts. The aim to practice eLearning derived from the need for job training, self-study, replacement of offline lectures by lecture recordings, attaining concentration, to create familiarity and awareness with subject-matter content and context. Thus, Web 2.0 technologies are frequently used to enhance communication, collaboration, networking, and active construction. In particular, SecondLife significantly

received attention and integrated into subject-matter contexts of humanities/social sciences. Wikis, Glossaries, Bookmarking, and blogs are the most preferred additional tools/technologies either offered by the LMS of the higher education institution or by Web 2.0. Eventually, group work is the often favored social organization form.

Document exchange and visualizations of facts, figures, and experiments are considerably underlined as primary aims to practice eLearning in engineering sciences' subject-matter contexts. The use of LMSs with embedded plug-ins such as "eAssessment" constitutes the common practice of engineering sciences' subject-matter contexts. Moreover, lecture recordings, virtual classrooms, and virtual/remote laboratories are indeed outlined as beneficial eLearning technologies to support eLearning scenarios and methods such as self-study, online synchronous learning, blended learning, project-based learning, experiment-based learning, simulation-based learning, training-based learning, and cooperative learning.

Communication and collaboration is sustained through LMSs in both subject-matter contexts. In fact, social forms were organized independent from contextual characteristics but dependent on the individual preferences, choice of instructional technology, scenarios, and methods.

The perspectives of the eLearning case studies conducted in engineering sciences were technology-oriented. In contrast, the studies of humanities/social sciences were more design-oriented. If the works of both sciences are compared, social sciences' subject-matter contexts are skeptical and try to create a meaning about the extent of eLearning and its potential benefits to teaching and learning in humanities/social sciences' subject-matter contexts. In contrast, engineering sciences' subject-matter contexts are willing to try out products of eLearning that they self-develop according to their needs and wants. Moreover, they improve the tools and products via testing them experimentally.

Federal Ministry of Education and Research (BMBF)[7] in Germany funded the project of "KoOP" in 2007[8]. The purpose of this project was to establish a holistic framework of inter-university conception and realization of digital innovations in order to circulate digital studying at Hamburg's higher education institutions" within the framework of the program "New media in education – eLearning services for science". The published

[7] Federal Ministry of Education and Research (http://www.bmbf.de/en/)
[8] Federal Ministry of Education and Research (BMBF) in Germany funded project. Retrieved from http://www.uni-hamburg.de/eLearning/koop.html

reports of KoOP revealed that the use of digital media for the aim of teaching and learning is still not well-integrated into practices of diverse subject-matter cultures. Although digital media provides context-specific eLearning practices (eLearning 2.0) that improves the quality of teaching and learning in diverse subject-matter cultures, eLearning 1.0 is still an approved form of eLearning (cf. Mayrberger, 2008).

Mayrberger (2008) underlines that digital media provides enormous potentials for subject-specific teaching and learning; however, it is still not completely exploited into higher education in Germany when the subject-specific teaching practices and consultation discussions are regarded. Thus, she considerably points out the importance of developing an eLearning strategy in order to circulate eLearning 2.0 in higher education. Mayrberger conducted a qualitative content analysis where she grouped the subject cultures into three domains: humanities, social sciences, and natural sciences. Indeed, she highlights the significance of running an analysis in each subject-matter context rather than academic disciplines with strong evidences indicating that each subject might demonstrate different artifacts apart from the disciplinary structure it belongs to; with references to the works of Huber, Benedikter, and Habermas (cf. Mayrberger, 2008). As a conclusion, the study of Mayrberger (2008) revealed that eLearning 2.0 is beneficial for each subject-matter domain significantly dependent on their epistemological structures and more research studies in subject-matter cultures is required to find out the added value of eLearning 2.0 in each subject-matter context which will improve the quality of teaching and learning in diverse scientific domains.

The outcomes of this dissertation reveal eLearning practices of humanities/social sciences' and engineering sciences' subject-matter contexts from theory-/ and practice-oriented perspectives in an explorative understanding and provide initial thoughts on context-based eLearning practices. Nonetheless, the results can neither be generalized nor provide a significant in-depth analysis of each subject-matter context (as in the study of Mayrberger, 2008) because eLearning itself is not used sophisticated enough to encourage a detailed conceptualization into distinctive categories dependent on numerous cases that can sufficiently provide enough information for the conceptual framework of eLearning instruction in diverse subject-matter contexts. Nevertheless, this dissertation created awareness about the potential different eLearning practices of diverse subject-matter contexts and pointed out the need to investigate more in depth and width, in order to create a need analysis of each subject-matter context. The analysis of needs in each

subject-matter context will guide the eLearning scholars and professionals to create more context-specific applications. Eventually, the primary action must involve diffusion of eLearning (specifically eLearning 2.0) and emerging technologies; and the development of interdisciplinary and trans-disciplinary collaboration in higher education institutions including all stakeholders is a requisite.

The results of this study demonstrated similar outcomes as in Rolfe et al. (2008), KoOP (2007), and Mayrberger (2008). Thus, one can assume that the awareness levels of instructors in diverse subject-matter contexts remained constant since 2008; regardless the country of origin. Although the number of distinctive eLearning practices are arising rapidly (i.e. OER, MOOCs, flipped learning, microlearning, mobile learning) that offer flexibility and mobility in order to support learner autonomy; this is not reflecting the majority of cases in humanities/social sciences' and engineering sciences' subject-matter contexts. In fact, the slowly increasing number of distinctive eLearning practices could be associated with the number of junior academics entering to the field who are digital natives. The junior academics active engagement with eLearning practices than senior academics is indeed underlined in this dissertation (see Appendix for interview transcription of Prof. Dr. Isa Jahnke). Therefore, it can be argued that the digital awareness levels of junior academics might have an impact on the integration of technology-oriented course designs in their specific subject-matter context where a further empirical investigation is necessary.

The conceptual framework of eLearning instruction could be definitely enhanced and tested by further research that might be longitudinal whilst the outcomes of this study fail to demonstrate the details of the developed conceptual framework. Dynamic nature of humanities/social sciences is not appropriate for static evaluation of phenomena in a certain time period, rather continuous evaluation is needed in different time periods to keep track of potential developments with regards to internal and external environments. An analysis and synthesis of every shift has to be iteratively conducted to discover and understand emerging phenomena.

In-depth examination and inquiry of afore mentioned aspects, facilitate the discovery of potential gaps and offer assistance to enhance the quality of teaching and learning with emerging technologies in diverse subject-matter contexts. The comparison of diverse subject-matter contexts' eLearning practices will encourage interdisciplinary and even trans-disciplinary discourse. Eventually, new insights will emerge that are considerably

sophisticated to provide contextualized practices of learning with emerging technologies. As Klimsa accentuates that there is no standard eLearning. But, the development and achievement of these standards are inevitable for future applications and they would be really meaningful only in interdisciplinary discourse (Klimsa, 2009, pp.61).

4.4. Limitations

Qualitative research methods are inevitably judged as being subjective whilst its nature prohibits generalization of responses. The use of quantitative research in social sciences will provide objective, reliable, and valid outcomes. However, these outcomes exclude additional personal statements, arguments, critics, and comments which may open-up new dimensions for a further investigation in an emerging field of study. Human beings and the society are at the core of humanities/social sciences whereby the scholars try to create a meaning from social issues. The impact of experimental methodologies covered by quantitative methods is not deniable. However, if there is no previous research study about the issue that is under investigation; previously developed theories and experiences of individuals are accepted as authorized resources that a researcher might benefit from and gather primary information. In this dissertation, there were only a few studies that refer approximately to similar issues. It is neither deniable nor unacceptable to indicate that the results can be generalized. However, this research study has right to state the situation of eLearning practices of diverse subject-matter contexts from the perspectives of interviewed participant groups where all responses are compared and contrasted with one another. The nature of humanities and social sciences is highly dependent on hermeneutics; thus researchers should be analytical, interpretative, and constructivist in the background of social research that encourages the use of qualitative research methods. Eventually, this research project has definitely right to enhance the theoretical framework of the emerging phenomenon.

Kvale explores the different possible philosophical approaches to how qualitative interviews can generate knowledge. He has rejected the influence of positivist approaches on qualitative research methodologies. According to him, qualitative research does not have to have an objective look since he believes that objectivity in itself has a subjective notion. He underlines that qualitative research can also be objective by “letting the investigated object speak” in defining the real nature of the object. He concludes as in-depth interviewing method is neither an objective nor a subjective method since its essence is “inter-subjective interaction”. Decisively, he underlined that quantitative and

qualitative methods interact within the practice of social research and a linguistically constituted social world legitimates the use of qualitative interviews as a useful tool (Kvale, 1996).

One hundred fourteen invitations were sent including both participant groups via e-mail and only twenty two interviews were conducted which were satisfying due to the saturation fact of the interviews rather than the number of interviews.

Guest, Bunce & Johnson (2006):

"Using data from a study involving sixty in-depth interviews with women in two West African countries, the authors systematically document the degree of data saturation and variability over the course of thematic analysis. They operationalize saturation and make evidence-based recommendations regarding non-probabilistic sample sizes for interviews. Based on the data set, they found that saturation occurred within the first twelve interviews, although basic elements for meta-themes were present as early as six interviews. Variability within the data followed similar patterns."

The use of Skype VoIP to conduct the interviews was an effective way for online communication with the interviewees. However, there were a few technical problems. The "ifree open source Skype conversation recorder" was used to record the interviews but there was overlapping speech of interviewer and the interviewee in two of the interviews. Indeed, the interview which is desired to be conducted with Prof. Dr. Ulrik Schröder from RWTH Aachen was planned but could not be accomplished because of an urgent microphone problem happened in the participant's computer. As a solution, the qualitative questionnaire was sent via e-mail and the interviewee resent the filled questionnaire to the interviewer after thirty five minutes without having any problems with the questions.

4.5. Recommendations for Future Research

This is an icebreaking study of eLearning practices in diverse subject-matter contexts; specifically, in humanities/social sciences and engineering sciences. The most important result of this dissertation is the understanding of eLearning as "document exchange and course organization" in each subject-matter context which reveals that the "e" in eLearning is often misunderstood. This has created a gap which requires to be further analyzed. A further research study might investigate the rationale of the determined outcome and reveal new dimensions to communicate and diffuse eLearning 2.0 in higher education institutions. It is clear that academics by some means realized the significance

of eLearning and the extent of academics who widely integrate eLearning in their teaching increase slowly when the previous research studies are regarded (Rolfe et al., 2008; Mayrberger, 2008).

eLearning is not a standardized way of teaching and learning. A higher number of instructors' need guidance to integrate eLearning in their own subject-matter contexts with regards to organizational, technological, and instructional aspects. Therefore, enlightening workshops or sessions about eLearning is strongly recommended to create awareness for all stakeholders of higher education institutions with regards to afore mentioned three aspects. This is already realized by some higher education institutions with the help of eLearning (i.e. solution) Centers; thus, positive remarks of having such mediators are observable in eLearning practices of some academics. However, this is neither a bare solution nor completely effective. Academics whose tendency is to integrate eLearning 2.0 (i.e. self-selection & integration of technologies) into their teaching practices are distinguished from academics who integrate eLearning 1.0 (i.e. integration of technologies what higher education institution offers). The instructions that are designed with eLearning 2.0 are completely dependent on the instructor's own decision on the teaching and learning design; in particular the "selection of media/technology and methods" is considerably self-determined and developed by instructors that create an additional workload for the instructor. To investigate afore mentioned dimensions in a further research study would be a great opportunity for researchers to overcome the gaps in development of eLearning 2.0 in higher education, specifically in diverse subject-matter contexts.

A further research study might be conducted to evaluate the extent of diversity in eLearning practices of each subject-matter context and reveal the dimensions for the guidance of instructors; to help them adjust their eLearning practices with best practice cases (i.e. benchmarking). An explorative qualitative research method/s might be indeed applied expansively. Instructors who practice eLearning for the purpose of document exchange and course organization; and individuals employed in eLearning Center's of higher education institutions could be interviewed. The outcomes would be contrasted in order to create a meaning for designing successful communication activities of eLearning 2.0 in higher education institutions with regards to subject-matter contextual characteristics of diverse fields of studies. The attitudes of human beings change dynamically according to the social, political, and cultural surroundings, thenceforth;

using qualitative research methods will be more descriptive than quantitative research methods to reveal the raison d'être.

An argument that is connoted by eLearning experts and instructors was the preference of "research over teaching" in German higher education institutions regardless the subject-matter context. This might be an influencing factor that decelerates the diffusion of eLearning 2.0 into diverse subject-matter contexts. A further investigation could disclose whether the argument is valid or not; with the help of a mixed method approach which would involve focus group interviews and quantitative questionnaires conducted with the higher education management and instructors.

In the contemporary educational atmosphere, the emphasis is considerably on occupational/vocational training rather than personal growth in the framework of existentialist epistemology. Emerging technologies reconstruct eLearning scenarios and the focus smoothly shifts from being occupation-oriented to personal growth-oriented education via the diffusion of the concept "openness" in academia (i.e. OERs, MOOCs, open research, open scholar). Undoubtedly, diverse scientific contexts have distinct personal growth procedures; therefore an investigation concerning "openness" in order to support personal growth of learners with regards to eLearning practices of diverse subject-matter contexts could be designed and executed.

In this dissertation, it is indicated that eLearning practices of interdisciplinary studies are higher than other disciplinary studies (see Appendix for interview transcription of Prof. Dr. Iliona Buchem). A further research study could be conducted to investigate the eLearning practices of emerging interdisciplinary subject-matter contexts such as "Business Informatics", "Digital Media and Society", "Digital Journalism/Public Relations/Advertising", "Online Communication", and many more; to justify the hypothesis created.

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6. FIGURES AND TABLES

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7. APPENDICES

7.1. Instruments

7.1.1. Qualitative Semi-Structured Survey of eLearning Experts' Perspectives on eLearning Practices in Diverse Subject-Matter Contexts

1. Do you think that there is a difference between the eLearning practices of humanities/social sciences' and engineering sciences' subject-matter contexts?
    a. If yes, what kind of differences do you notice? Could you give some examples?
    b. If not, why?

2. What is the most important benefit and challenge that eLearning brings to humanities/social sciences' and engineering sciences' subject-matter contexts?

3. What kind of learning media/tools do you think humanities/social sciences' and engineering sciences' subject-matter contexts prefer to use?

4. What kind of e-Learning scenarios/methods do you think that humanities/social sciences' and engineering sciences' subject-matter contexts prefer to use?

5. What kind of social forms are adapted in eLearning courses conducted in humanities/social sciences' and engineering sciences' subject-matter contexts?

6. Could you please evaluate the importance of communication and collaboration in eLearning courses implemented by humanities/social sciences' and engineering sciences' subject-matter contexts?

7. If a software or an electronic environment have to be created just to enable eLearning, how would it look like for humanities/social sciences' and engineering sciences' subject-matter contexts?

8. Do you think that eLearning is more suitable and applicable to any subject-matter context?

9. When you were conducting the same research study, what would you ask to teachers from diverse subject-matter contexts about their eLearning practices?

Wrap Up

10. Is there anything you would like to add?
11. Is there any question you may think that I should have asked?
12. How did the interview feel for you?

7.1.2. Qualitative Semi-Structured Survey of Instructors' Perspectives on their own eLearning Practices

Part I Background

1. When did you begin to integrate eLearning in your teaching?

2. How many eLearning courses did you teach until now?

3. How many eLearning courses do you have recently?

PART II eLearning Experiences

4. Could you please share your experiences and describe the characteristics of one of your eLearning course?
   - What was the type of **content** you preferred in your eLearning course?
   - What was your **aim/objective** in teaching with eLearning?
   - How many students are enrolled in your eLearning course?
   - What was the **instructional idea/epistemology** behind your eLearning course?
   - What kind of **teaching and learning activities** did you integrate into your eLearning course?
   - What kind of **media/tools** did you utilize in your eLearning course? How did you decide to use them?
   - What kind of activities did you adapt in your eLearning course to enhance **communication and collaboration** between you and your students, and between students?
   - Did students work **individually or within a group**?
   - How did you **evaluate the success or failure** of your students in your eLearning course? What was your including **criteria**?
   - Did your eLearning course increase communication and collaboration between you and your students and between your students? If yes, How?

5. What kind of **benefits** did you notice while teaching with eLearning?

6. What kind of **challenges** did you notice while teaching with eLearning?

7. What kind of **differences** did you notice while teaching with eLearning, in particular, compared with traditional instruction?

8. Do you need any **support** while teaching with eLearning?
   - If yes, what kind of support do you need?

9. Could you please shortly **evaluate the eLearning practices** in your subject-matter context?

10. If a software or an electronic environment have to be created just to enable eLearning in your subject-matter context, how would it look like? Could you please shortly describe such an environment?

PART III Wrap Up

11. Is there anything you would like to add?
12. Is there any question you may think that I should have asked?
13. How did the interview feel for you?

7.2. TRANSCRIPTIONS

7.2.1. eLearning Experts

7.2.1.1. List of Participants Group I “eLearning Experts”

Interview Partner	Field of Study	Institution
Dr. Heinz Bachmann	Hochschuldidaktik	PH Zurich
Dr. Martin Ebner	Computer and Information Services / Social Learning	Graz University of Technology
Dr. Christoph Igel	eLearning	CeLTech – Centre for eLearning Technology – University of Saarland
Prof. Dr. Isa Jahnke	Applied Educational Science, ICT, Media & Learning (ICTML)	University of Umeå
Dr. Tobias Jenert (on behalf of Prof. Dr. Dieter Euler)	Mediendidaktik	University of St. Gallen
Prof. Dr. Lars Knipping	New Media in Mathematics and Natural / Engineering Sciences	Berlin Institute of Technology
Dr. Mark Krüger	Communication Networks, Location Based Services and Systems, Transmission Technology and eLearning	University of Leibniz Hannover
Prof. Dr. Thomas Köhler	Educational Sciences	Technical University of Dresden
Prof. Dr. Helmut Niegemann	New Media and Learning	University of Erfurt
Dr. Annabell Preussler (on behalf of Prof. Dr. Michael Kerres, secretary redirection)	Mediendidaktik, Knowledge Management, Educational Sciences	University of Duiburg - Essen
Dipl. –Ing. Rolf Reinhardt	Media, Technology and eLearning	Learning Agency Network
Dr. Klaus Wannemacher	Higher Education Management	Hochschul Informations System GmbH

Participant ID: Dr. Heinz Bachmann (HB)
Interview Name: eLearning expert interviews
Short Biography: University instructor working in the field of Hochschdidaktik/Erwachsenenbildung in the University of PH Zurich
Site/Location: Skype VoIP
Date of Interview: 13/05/2011
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

(Out of topic)
START OF TAPE 1 (1 TAPE TOTAL)

DY: Can I record the interview, do you permit?
HB: That's okay, yes.
DY: Okay, then I can start with the first question.
(Out of topic)
DY: Okay, um, my first question is, do you think that there is a difference between the eLearning use of technical sciences disciplines such as engineering sciences and social sciences disciplines?
HB: ...ah, depends on, um, how you are going to use it. I think it can be different but...[inaudible segment]
DY: Mr. Bachmann?
HB: Yeah. Yes.
DY: Okay.
DY: Um, what kind of differences do you notice can you give me some examples, please?
HB: As I said, I can see differences but need differences,
DY: What pardon?
HB: So, in many, in many circumstances, I-I would say [inaudible segment] any difference but I can imagine that let's say if you use the internet fo-for simulations or people work together there I would see, so, differences.
DY: Can you please repeat because there are some sounds coming from because of Skype I think and internet connection (short sharp laugh).
HB: Okay, I think in general, there is to me no difference but depending on the nature of the subject,
DY: Uh-huh.
HB: I can see a difference. For example, if you have a technical aspects,
DY: Yes.
HB: which anyway I think computer or have simulations , there I-I can see differences.
DY: Can you say that there is a difference with regards to type of content, learning theories, scenarios or methods?
HB: With more impression on content.
DY: Uh-huh. You mean the main differences are around the media use or?
HB: Um, yes.
DY: Okay, what is the most important benefit that eLearning brings to technical sciences, what do you think?
HB: For me the most important benefit is that as a lecturer you have-have a chance to learn your students from different side.
DY: Mm-hm.
HB: And, personalized...for the teacher.
DY: And, what kind of challenge eLearning bring to technical sciences?
HB: For me the challenge is that time you need to spent, I mean you get more out of it but you also spend more time.
DY: Uh-huh. Can I ask the same question other way around for the social sciences? What is the benefit and the challenge?
HB: There I would say it is pretty much the same.
DY: Pretty much the same. Mm-hm. Okay, then, we are going speedy, and I'm asking my fourth question to you, when you were conducting the same research study about academic disciplinary differences with regards to eLearning, what would you ask as a main question to lecturers?
HB: If I, now, this is, let me put it like this, If I understood you correctly, then I would say, my main question would be are you ready and you have time to spend, a certain time for this kind of education with your students. For me, my experience, it means an additional task, an additional task.

DY: What do you expect from the future technology applications of eLearning for each discipline ?
HB: Actually, what I hope, what I also think about this, I would say that in the future it would be more easier [inaudible segment] but regarding the benefit I think that's about all benefit.
DY: Mm-hm. Is there anything you would like to add to this interview or any question, you may think that I should have asked?
HB: Um, for me, it's really, because even so you explained it, it is not quite clear what your objective is, let put it like this, I'm working with lecturers and I use, um, the internet, um, especially, I use a blog like learning diary with my lecturers and what I see there, um, I... have specific studies. So,[inaudible segment], throughout a whole year and what I can see now, is in between, I mean traditionally that was really [inaudible segment], now it is a blog, it is like I-I'm in a position to [inaudible segment] even so, in between you don't need.
DY: Mm-hm.
HB: [inaudible segment]. I get to know them, um, in a different way sometimes personal, [inaudible segment], but at the same time, I impressed it is time-consuming [inaudible segment], but in contrary, the quality is I think it is bigger. My impact is not from [inaudible segment].
DY: Mm-hm. Okay, how did the interview feel for you in general?
HB: Ah, actually, the reason was to say 'yes' to this was although it's the first time that I do something like this.
DY: Mm-hm.I was curious to see how I would, I would react [inaudible segment].
DY: Um, I didn't heard (short sharp laugh).
HB: So, for me it was an experiment itself to see,
DY: Okay.
HB:...and your research, I would say your survey or an interview on internet, I wou-would like to see if it was a person whose impression [inaudible segment].
DY: Yes. Okay, then, I would like to thank you for the interview because I have only five open ended questions. And you were a little bit rapid to answer those questions. Um, okay. Um, I would send you also the report of my study if you want.
HB: Yes, please.
DY: Yeah, okay... Then, thank you for sparing time for me.
HB: You're welcome and good luck. Bye bye.
DY: Thank you, bye bye.
END OF TAPE 1.
END OF THE INTERVIEW.

Participant ID: Univ.-Doz. Dipl.-Ing. Dr. techn. Martin Ebner
Interview Name: eLearning expert interviews
Short Biography: University Instructor working in the field of Technology Enhanced Learning at Graz University of Technology
Site/Location: Skype VoIP
Date of Interview: 04/10/2011
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (1 TAPE TOTAL)
(Out of topic)

DY: Do you agree with the record of the interview?
ME: Yeah.
DY: My first question is do you think that there is a difference between the eLearning practices of technical sciences and social sciences?
ME: Yes. There is a big difference.
DY: Mm-hm. What kind of differences do you notice?
ME: Um, this is maybe hard to describe. Also (Deutsch), I would say also (Deutsch), technical science means, you use formulas or calculations, and you also thinking in this kind of way. And, um, in social sciences we have if you see, in social studies you have, um, the most of the study is to discuss and to make reports and think about things, um, in the technical science we have, um, not this problem, there is no real discussion because you have to calculate and if, um, it's right in the end, um, it's ok, ja. And you have to calculate, um, I think my study, you have to calculate fifteen pages or something like that there is a result.
DY: Mm-hm.
ME: There is a law and I have to, I have to say okay, um, this should be right result. But, there is no discussion about the result. That is a very big difference.
DY: Mm-hm, with regards to eLearning practices, there is also a difference?
ME: Um, yes, of course because the tools you need, um, um, to assist such studies is different so because of, you can try to use a weblog and try to print some formulas there then you have to see that a weblog, um, is not the right tool for technical sciences.
DY: mm-hm.
ME: Because there is a discussion about these formulas, all the things are-are big problems.
DY: Yes. Okay, now I'll continue with my second question. I would like to ask what's the most important benefit that eLearning brings to technical sciences?
ME: Mm. In genereal, it is, um, it is, um, the most interesting thing for technical sciences, it is a good question. More or less, it's, um, if you use technology in technical sciences that means often technology is in much more different ways, for example, we have online labors (laboratories), just like things, you have all these scripts to download, you can try something out with programs, interactions, animations, um, or you can have videos for labortories or something like that. That means, there is much more power of visualizations through simulations, through animations and learning objects in a kind of way that you, um, calculate something, ja ("yes").
DY: yes.
ME: So to say clear goal, you have to say there are some parameter and if you put in this parameter and you get this result, this is clear because you have to calculate, you can calculate it for your own and do something like that.
DY: Mm-hm. And, what is the most important challenge that eLearning brings to technical sciences?
ME: Um, yes, um, the idea is much more a problem, technical sciences is the didactic approach. Um, because, um, technical sciences is were growing,um, just for people, um, who has no real pedagogical,um, education. Um, that is so, we always, technical people, it is educating a technical people, that's a kind of different way to, um, teach something and there is no real didactical approach, no pedagogical issues so, that means you have to calculate, I'll show you on the blackboard how to run it and you have the result. That is, also ("well"), I, um..in my university, I have to teach people how they can build some learning object and how they can use it, I have to teach them how, what is the didactical approach if you use it and what is the setting behind and there is the big lack in the university.
DY: Mm-hm. Okay. And, what is the most important benefit that eLearning brings to social sciences?

ME: Um, yeah, this is in a different way I think. eLearning has the power for networking and communication, we do for discussing also online to bring people much more together. And, um, as I mentioned before this is not very powerful for technical sciences, in the first run, because I don't think it is a ...it is much more for social sciences. Because what they have to do, they have to discuss something, they have to communicate to comment something, um, something like that and there are tools for collaboration, um, something like that and that's the most part behind.
DY: Mm-hm...and the challenge that eLearning brings to social sciences?
ME: Um, yes, it is a ... the other way around. That means if you have learning objects, also ("well"), if I go to social sciences people are not able to make the content, to have not imagination about what they can do, yeah?
DY: Yes.
ME: Because they see, ah, the computer is something like something would never need, um, we need them for booking a flight or something like that, and there is no imagination what techni-technical computer can do and then, this is indeed a problem, ja ("yes"). And, of course, um, yeah, if I'm discussing with social science people, I have to discuss beforehand the didactical problem and, um, what's imagend, we have not discussed a problem, we have to the content, we have to, we can think out, what we can or how we can change it. But, there is, um, I think one or two years discussion about the didactical approach about the content, this is also senseless.
DY: Can you say then, didactical approaches is a main challenge for the soc..., technical sciences and the social sciences?
ME: No as a didactical approach is the main challenge for the technical sciences, for the social sciences may be the technological approach, how we can produce content, yeah, and we can do good content, for example, and what is possible to do?
DY: Mm-hm. And, my third question is, what kind of eLearning tools as instructional media do you think social sciences prefer to use?
ME: Oh, I don't know because it is a matter of tools. It is a matter of how do, what do you like to use and what is your didactical aproach and what would you like to do and there are many many tools, um, you can doing a lot whatever is a kind of a technology or whatever also a simulation, animations or the next coming things are e-books or whatever it's. It doesn't make sense to say okay these tools are really good for social sciences, in general, technology enhanced learning is good, also for social sciences.
DY: Okay, and what kind of eLearning scenarios do you think social sciences prefer to use?
ME: Um, yes um, much more the classical one, I think, um, it is the same for technical science, the calssical eLearning approach for I would say 90% of users outside of this, they like to put their content mainly a pdf or a ppt, um, on a server and um, the students can download it, this is the situation we have, also, for years now, and it's really slowly growing to another direction, also ("well"), to say as a okay, there is a teacher who is using a wiki or is using a weblog, this is just one of thousands, you know.
DY: Ah, you mean that it is also valid for technical sciences?
ME: Yeah, this is..., also ("well"), I think there is no difference, also ("well"), we really talking in research about so what we can do is collaborative tools or something like that and when we are talking about one or two persons who tries it ok, the imagination what technology can, um, can bring us but um, the main problem remains, really is that we have a tool or make system called mainly learning management system, they are all, um, pdfs online and students can download it because this is after ten years, also ("well"), or let me say it in a little bit other for ten years ago, we haven't a system and we haven't online materials, now, we are, we are, we have online materials and for sure, in ten years we are much more towards collaborative, and may be old teachers are using discussion forums, blogs or whatever, but this, this needs really time.
DY: Really time. Okay.
ME: And, what do you think about the social forms of students such as individual work or group work on eLearning environments with regards to social sciences and technical sciences?
ME: Um, yes also ("well"), my, also ("well"), I see no real difference, um, the difference is may be, um, that typical technical student, um, will use "TECHNI-TECHNIK" (TECHOLOGY") this means, um..., he is used to use a laptop or he is used to use internet for something and, um, typical social science student, um, is not so, um, depends not so much on technology. Um..,but, in general, the use and the difference, um, the use for example, web 2.0 technologies, there is no difference. Also ("well"), technical students may know what is about microblogging, what is about facebook, as I'm said that a little bit more than social students but the, um, technical use it more than the other way around. It's just

nearly the same. There is much more, this is mainly you have really to say if a technical student is coming he is not against technology.
DY: Mm-hm.
ME: But, this is a general opinion yeah this is, also ("well"), he is, he likes to use technology and he will also like to use technology in general for learning.
DY: Let me ask it other way around, um...do you think that social sciences students prefer more like individual work or group work? On eLearning environments, of course.
ME: Um, yeah I don't know it, I think this may be a task of the lecturer if he is a from technical students here,... they do not like here group work, because group works several times much, technical because there is problem of technik, um, of the technical environment, this is in general a human problem, yeah? That, one student is not working, one student is more whatever, and he do groupwork instead of alone instead of together something like that, yeah. So, it's mainly a problem not of technical environments.
DY: Mm-hm, okay, could you please evaluate the importance of collaboration and communication, um, in eLearning atmosphere from social sciences point of view?
ME:Mm-hm, um, yes, the collaboration and communication is really important. Um, I'll say it as a, for the first time, we was beginning we launch self learning environment system that learning is, um, strictly focused on communication and discussion, um, and, um we have tools to support also communication through the, through, world wide web. And, um, yes, this so I think, um, one of the most important factors because learning occurs if you are communicating about a problem. But, it doesn't matter which study.
DY: And from the technical sciences point of view, it is the same or different?
ME: Oh, this is indeed the same, um..., more or less the technical students are not, um, used to communicate about their results. Then, we like to improve it and we say think about the result could it be right, why not? Or whatever and discuss it and may be through the discussion you learn about much more in-depth about something like, um, if you do it before but, um, in processing the general learning behavior, yeah.
DY: Yeah, okay, um, if a software or an-an electronic environment have to be created to enable eLearning how would it look like for social sciences?
ME: (laugh)
DY: It is a creative question. (laugh)
ME: Um, so, my opinion is not, we have not a software, we have an environment, we have behavior and that's a difference. It means if I'm used to, for example, to wake up in the morning and I would like to use my mobile phone for different things, um, then, I'll change my behavior because this deviced have changed my life. And, in the same way we have to think about learning in the same way so if I change children or students or whatever, use a device also for learning purposes, then, we have to change in the mind, then, we have to think about how we can um, um, support this behavior with our technologies. But, it doesn't matter on which software this is, um, they have to get just the information just in time and we have to solve the learning problem much more in time. And, that's the same interesting thing in long run, to say okay, in the future of learning, I have device and this devices connected anytime, anywhere, if I have a problem, a question I can easily ask and get a response. And that is much more interesting than to say okay, a university or an environment may be or can you get all the questions answered or whatever, yeah. And this is, um, so, this is not the software program it's much common of the people to how it changed daily life with different devices.
DY: Mm-hm.
ME: Then, we have to think how we can support this devices in different ways to bring their learning to that.
DY: Is this opinion is valid for technical sciences, too?
ME: Yes, also ("well"), this is much more difficult because technical sciences, the content of technical science is much more sophisticated, yeah,
DY: Yes.
ME:...from technical point of view.
DY: And, do you think that eLearning is more suitable to social sciences o technical sciences?
ME: Hm. There is no difference, I don't think so. This is in general important for every science.
DY: Um, last but not least, um, when you were conducting the same research study that I' conducting now, what would you ask as a main question?
ME: Um. I think that I guess it was one of the first questions, um, where you simply asked we have to ask people who working for example, at the university, working in a technical university, would you go to the other university and bring the same, release the same products at this other universities to run.

And, if you think in this example, also (“well”), I, ever, in every talk, I saw, this is okay for a technical university, this environment is okay for a technical university, this content is okay, but in neverhood, be able to take this content, this environment, go to a social sciences university and do the same but it is not possible. And, that is because, um, learning is um...um, assissted by computer technology means all that, um, um, the sciences get much more, not closer, much more broader, as a broader thing that we have to think about, it is complete different didactical approach, complete different content, but of course also based on computer technology.
DY: Mm-hm. Okay, is there anything you would like to add or how did the interview feel for you?
ME: Oh, thank you, I think (laugh)
DY: (laugh) it was a little bit speedy, but, okay.
ME: (laugh)
DY: I would like to thank you for the interview approval and it was nice with you to interview.
ME: Yeah.
DY: Yes. And, I’ll send you a short summary of my phd thesis,
ME: Yeah.
DY:...as soon as I’m finished.
ME: Yeah, it would be fine and all the best for your phd.
DY: Okay, thank you very much. Have a nice day.
ME: Yeah. Bye.
DY: Bye bye.
END OF TAPE 1.
END OF THE INTERVIEW.

Participant ID: Privatdozent[9] Dr. Christoph Igel (CI)
Interview Name: eLearning expert interviews
Short Biography: Managing Director of Centre for eLearning Technology (CelTech) of Saarland University, the University of Applied Sciences of the Saarland University and the German Research Center for Artificial Intelligence GmbH.
Site/Location: Skype VoIP
Date of Interview: 13/12/2011
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (1 TAPE TOTAL)
(Out of topic)

DY: Okay. The maximum duration of the interview will be 30 to 40 minutes depending on the interview flow. Ah, do you agree with the record of the interview?
CI: Yeah, it's okay.
DY: Okay. Now let me begin with my first question. Do you agree, do you think that there is a difference between the eLearning practices of technical sciences and social sciences?
CI: Sorry, can you repeat the-the question, is there a difference between...
DY: The technical sciences and social sciences with regards to eLearning.
CI: If you have a, you mean, if you have a focus on eLearning technology or eLearning development or what is the background of your question?
DY: eLearning use by academic disciplines, for example, we take engineering sciences and social sciences, is there a difference between the utilization of eLearning in those sciences or not?
CI: In my experience, the social sciences,
DY: Yes.
CI:…use more learning technologies, improvement of the quality teaching and learning,
DY: Mm-hm.
CI:...than, the computer sciences and informatics, for example.
DY: Yes.
CI: It's also our experience here in Saarland University or different universities origin, computer sciences and informatics for example, has distance to computer technologies for improvement of-of teaching and learning.
DY: Mm-hm.
CI: It is a little bit different if you have a look for example, the field of examinations or assessments,
DY: Yeah.
CI:...and in this field of examinations a-and assessments, also, the computer sciences and informatics, also, engineering's use innovation technologies,
DY: Mm-hm.
CI:…as well as social sciences or humanities,
DY: Mm-hm.
CI:…if you have stronger focus in the field of education, this mean teaching, learning. In my experience, it's, um, mum, um, um, you have stronger connections between humanities social sciences and education technologies.
DY: Yeah. Then, you, you are, um, supporting that there is a difference between the utilization of eLearning.
CI: Yes, yes.
DY: Okay, what is the most important benefit that eLearning brings to technical sciences? Do you think? What can be a benefit?
CI: Huh. It's a good question. (Laugh) to the technical sciences, well, I- I think, first of all, the improvement of quality of teaching and learning,
DY: Mm-hm.
CI: ...and may be also especially the aspect that the colleagues has-has the opportunity and possibility to reflect what they, they are doing and the concrete process of learning, of teaching, of examinations.

[9] Associate Professor

DY: Yes.
CI: In my opinion, um-um, learning technologies and education technologies, um, has really big added value for engineering, for technical sciences regarding how I can improve learning and teaching at universities but also at colleges or whatever, and our experiences is also the quality of teaching and learning for the typical engineering sciences or technical sciences is not so important.
DY: Mm-hm.
CI: But, if you have a look on the humanities if you have a look on the psychological disciplines, or pedagogic or however, they are more interested in to improve the quality of learning and the typical technical disciplines, they are more focused on research and development.
DY: Mm-hm. Um, what is the most important benefit that eLearning brings to social sciences? Um, you said um, improvement of the learning quality, um, any other?
CI: Well, first of all, I think, one really important aspect for social sciences and for the humanities specially to support process and the management aspect of learning, on the one hand.
DY: Mm-hm.
CI: On the other hand, if you have a look on current theories, for example, connectivism and other things, also to support working groups and the dialogue between teachers and learners. Especially, also, to-to connect typical classical learning management systems with web 2.0 services and-and-um-um applications as wiki's, blogs, YouTube, iTunes, whatever you want to use, to help to-to-to build up something like learning community or an educational community,
DY: Mm-hm.
CI: …this is in my opinion a specific aspect with a, um, specific focus in humanities and social sciences to have more, to have a stronger look on the or closer look on the, on working groups, yes? Or, the discussion or the dialogue between the peers, but also, between students and teachers and teachers and students,
DY: Mm-hm.
CI: …and with focus on the technical disciplines, you have more, something like lectures typical classical lectures one teacher one hundred students are sitting in the lecture hall hearing what the-what-the-the teacher is talking on and what's going on but less dialogue, and interaction approaches. It's clear, is it understandable what I want to say?
DY: Mm-hm. You mean that for example, web 2.0 tools is a neces- is a good benefit for social sciences, for discussion and the working groups and for technical sciences you mean that it is a necessary tool for improving the learning and teaching activities.
CI: Yeah, yeah, because it is more, in my opinion it is more the nature of the humanities to discuss and have interaction that in the typical technical sciences, um, um, um, for example, informatics, computer sciences, engineering and so on, it is not, it is not so important in the first stage, it is not in the first step, it is not so important to discuss.
DY: Mm-hm.
CI: But, it's only my opinion, yeah, maybe you have another opinion on this.
DY: Thank you; it is a question with you (laugh). And, what is the most important challenge that eLearning brings to technical sciences? Or is there an-any challenge for the technical sciences?
CI: What is your understanding of talent in this question?
DY: Challenge, challenge.
CI: Challenge? Oh, sorry, I understand talent.
DY: No, no, it is possible because we are in a technical environment right now. (Laugh)
CI: Yeah, why not? (Laugh) I never heard before that technology can bring you talents. (Laugh)
DY: (laugh). Okay, what is the most important challenge that eLearning brings to technical sciences?
CI: The technical sciences.
DY: Or is there any challenge?
CI: …hm…, really good question. Um, friendly, I have no answer on this.
DY: You can skip if you want.
CI: You know, well, I think the-the-the typical situation in the technical sciences is to be open minded to connect different um-um universities to connect or to work in-in- initial communities and in my opinion this is also different from the humanities or the social sciences. Yes? Or, um, oh, um… sometimes you have the situation that also humanities working worldwide but they have a stronger focus on a national, regional or a local level. But, if you have a look on the computer sciences engineering, informatics, it is a typical issue for us to work worldwide. And, so, for example, if you have a look on the added value of the learning technologies or technology, um, yes? That mean you can work anytime, anywhere, you connect people um, um, and-and you connect to learning materials, for

example, we use in-in-in our um-um courses for informatics and computer sciences, we use typically, also, the learning materials from the MIT.
DY: Uh-huh.
CI: And for the humanities and the social sciences, this was five or, five-six-seven years ago, it was a big challenge to use learning materials from other universities or to have a look on world wide networks. But, I think, in my opinion computer sciences, informatics and also the technical sciences are working worldwide more than ten, fifteen, twenty years. And so in my opinion, the added value, technologies can give you, or can give the disciplines, the technical disciplines use for typical for to connect each other, to use materials to share it and on. But, this is a typical issue in the technical sciences but in the humanities and the social sciences, it is not a typical issue.
DY: It is a challenge?
CI: And so, I think the added value also, challenges, for the development of the-of the, um, teachers and also the development of the behavior of students is bigger in the social sciences and humanities than the technical sciences.
DY: Okay. What kind of eLearning tools as instructional media do you think social sciences prefer to use?
CI: Oh...
DY: I think you already answered it. (Laugh)
CI: Well, there are different tools that mean your question focus for example, learning management systems, content management systems, like this?
DY: Mm-hm, yeah, like this.
CI: Well, basically or fundamentally, they use, yes of course, they use learning management systems but in my opinion it is last two, three, four years, there is-there is an increase in number of web 2.0 applications. They work with, and they try to connect them with the teaching process with the learning process. And, well I think some of them are also using something like authoring tools for development of content but it is, it's a, it's a minor part of teachers, you-you develop new content, the bigger part want to use technologies, it is not interested in to develop new content.
DY: What kind of eLearning tools do you think technical sciences prefer to use?
CI: Hm...It's good, good question. I think learning management systems are not so interested for them. Um, what I see and what is in my experience, they use, specially more classical-classical tools, that means the programs HTML pages and um, um, the pages of the links, the students share the materials, the students but they do not use, in my opinion, here in Saarland University or at other universities I know, they do not use really big learning management systems or big content management systems.
DY: Yes.
CI: It is more, is more technical solution, they typically use.
DY: Okay, um, can you say that they have their own way of own tools for eLearning can you say something...can you guess or?
CI: No, yeah, in my opinion, it's, it is a nature of for example, if you have a look on, on, on the computer sciences or informatics, it is a nature of the teacher, also, the students, to develop their own solutions. And, this is actually different from the humanities and social sciences, they are not interested in to develop. Or, for example, if you have a look on information sciences, yes, they want to understand what a change in the behavior we have. But, they are not interested in-in to develop the best technological solution for authoring, for learning, for teaching, whatever, and the students of informatics sciences or engineering are really, um-um, on the other side, they are not interested in to understand what changes we have in the human behavior.
DY: Okay. What kind of eLearning scenarios do you think that social sciences prefer to use?
CI: In-in my experience, the typically eLearning scenario for social sciences are blended learning scenarios…and sometimes also they, um, um, record or broadcast something like eLectures. But, yes, I think blended learning is the typical scenario.
DY: Okay, and for technical sciences what are their scenarios?
CI: Oh. Do you really think the technical sciences, has something like educational scenarios?
DY: I can't say any statement in this interview. (Laugh)
CI: (Laugh) I'm not sure, I think the typical situation for us is to give the lecture...or to work strongly with the students in a project in a research or development project. And it is quite different from the humanities and the social sciences. And therefore, um, yes, I think, if we use learning technologies in the field of technical sciences, informatics, engineering and so on, I think the most important aspect is sharing of content, sharing of documents, doing the paperwork in an easy way, but the typical situation on the other side is to work in a project, research and development project, directly face-to-face.

DY: Mm-hm. Okay.
CI: So, friendly, the-the-the, um, learning technology, the education technologies, as not so big impact on the technical sciences, in my opinion, as in the humanities or social sciences.
DY: Nice answer (laugh). What do you think about the social forms such as individual work or group work on eLearning environments with regards to social sciences?
CI: So, can you repeat the question?
DY: What do you think about the social forms such as individual or group work on eLearning environments with regards to social sciences?
CI: Oh. In my opinion, this is only, it depends um, um, on the, on the what's the aim they want to have with using learning technologies.
DY: Yeah.
CI: If you want to prepare for an examination, yes, they, um, practice, they, um, um, use web trainings, for example, or electronic tests or something like this. But, if you are working in-in-in a course, of course, you want to have this dialogue, um-um-um, it is so important to understand the content or to learn the content. So, I think, it's absolutely depends from the learning scenario.
DY: Or, let me ask it in another way...do you think that on eLearning environments social sciences prefer to um…work on the issues individually or more collaboratively, or more individually.
CI: No, more individually, not so much collaborative.
DY: And the technical sciences?
CI: Oh...,
DY: (Short laugh). If you want you can skip.
CI: Well, I-I think also in this, um, um, in this sciences you also have more individual solution but the use of technology is different. In the humanities and the social sciences you try to understand the content, you learn your content based on learning technologies and the technical sciences in my opinion, you share documents, and you realize the paperwork based on technologies so in my focus there is currently there is not really a need, a-a typical use of learning technologies in the technical sciences. Or, if they use it, they-they make something like simulations or visualizations, that's okay. But, not-not really to support learning process based on interaction or something like this.
DY: And, could you please evaluate the importance of collaboration and communication in eLearning atmosphere from social sciences point of view? Especially, the communication...
CI: Do you think, what-what is the aim of your question? Do you want to-to know if there is any change in the communication or behavior?
DY: With regards to traditional classroom is, do you think there is any change,
CI: Yeah.
DY:... in the communication processes when using eLearning between teachers and students, between students and students?
CI: Yeah, of course. Yeah, of course. There a-are many changes because on the one hand, on the one hand, you can discuss for example, the students from other universities they have never seen before, yes, and, um, um, I also think because students are more and more based on online communities, yes?, are linked in online communities like facebook or whatever, and, um, um, um, in my opinion, there's a fundamental change in the way of interaction, that mean as well as communication as well as collaboration, yeah, of course.
DY: And do you think it differs, in the… context of social sciences and the technical sciences or do you think that it is the same in both sciences? In both?
CI: In both, yeah. I think so.
DY: And if a software or an electronic environment has to be created to enable eLearning. How would it look like for social science?
CI: Pufff... I think, I think the most important aspect, is you have to improve how you-you can, um, how you can realize new education scenarios, this is one, in my opinion, this is one important aspect, the other aspect is um-um, what is the added value...that mean why I should do this. And the third aspect can be how I can increase efficiance of learning processes and teaching processes. But, this is stronger focus of the management of learning and teaching. I think this is re-really important aspect on this and in my opinion it is not so important to give a better understanding of the use of the technologies or-or the, you know the typical training situation, yes? Shows the technology, show how you can navigate through the technology or in the technology and I show how you can...what happens if you press on this button or this button and my experience as, well, we started ten years ago with such training scenarios and in my opinion, especially, for the humanities, you have not to show, you have not to explain the technology, you have to explain what is, what is the added value for the education process.

DY: And, for technical sciences do you think if a software or an electronic environment have to be created to enable eLearning. How would it look like for technical sciences?
CI: Yeah, I expected that you want to hear that also for the technical sciences. (Laugh)
DY: (laugh) because, my thesis relies on this, Sorry.
CI: (laugh). No, it's, it's, okay but again in the technical sciences, I think one of the most important aspect is what you have to-to-to-to explain and what students have to understand in learning environment is how you can improve the-the efficace of the processes. Share documents something like this. There is no stronger focus on, there is no similar focus as in the humanities, for example, focus on education.
DY: And, eLearning is more suitable to social sciences or technical sciences, do you have an idea, like this?
CI: In my opinion, um, fundamentally, learning technologies has and added value for, added value for every discipline, but, the question is, do they, do they teach us or the students that accept this added value? Or do they have the, do they have the feeling or the impression that the dded value is really an added value for education. And, in my opinion, in the humanities and social sciences, the student and the teachers are more open minded in this direction regarding this question how I can improve quality of education.
DY: Do you mean social sciences?
CI: Yes, of course. But, in the technical sciences, they are more interested in research, development doing projects, something like this and the focus is not so strong regarding the improvement of the higher education process.
DY: And...
CI: But again, it's only in my opinion and my experience.
DY: Okay, thank you very much. When you were conducting the same research study, what would you ask as a main question because, um…I'm doing now the interviews with eLearning experts in Germany and Switzerland and next time, I will do this interview with the lecturers from engineering sciences field and social sciences field. What would you ask them as a main question?
CI: What-what do I ask them for the...
DY: If you were doing the same research study that I'm conducting now what would you ask to the lecturers side as a main question?...Or what would you ask to lecturers with regards to eLearning use in various disciplines?
CI: Oh... Sorry no idea.
DY: Okay, no problem.
DY: Is there anything you would like to add to the interview?
CI: No, um, friendly spoken, I, I, um, um, um, I do not understand some issues and some items and do not understand what is so, the, what is your, what is the goal this questions? What is the aim of this questions. I think you, what are your objectives and um, and additional remark is, um, I think that the questions you have um, I think we have a lot of answers on this. Friendly spoken. Because there are a lot of-of evaluations for example, of learning scenarios, yes, there are a lot of experiences in the field of how I can use it for what kind of content for what disciplines and so on and may be you have another background or you have another objective, um, um, um, this questions, um, exactly.
DY: Actually my objectives to evaluate the media application. I mean especially the specific eLearning tools that used in different contexts such as social sciences and engineering sciences. I'm more in the tools part. Because my background is on communication sciences and now I'm interested in eLearning applications, so I'm also in the communication faculty of Ilmenau University, technical, sorry, um... Oh I can't, I can't, sorry, Ilmenau University, let's say, TU Ilmenau. And, there I'm studying communication aspect, collaboration and media applications with regards to eLearning. [Inaudible segment] with regards to different academic disciplines.
CI: Okay, okay. Okay, okay, this is, now I understand your background better, and better way and and, um, I friendly spoken in my opinion the communication in the different disciplines, technical disciplines or humanities, social disciplines, humanities, um, based on learning technologies is really similar as communication face to face versions. That mean if you have for example, a typical teacher in the field of computer sciences and informatics, yes, he is, well, may be you can now out of topic, this is out of topic.
DY: Okay.
(Out of topic)
END OF TAPE 1.
END OF THE INTERVIEW.

Participant ID: Prof. Dr. Isa Jahnke (IJ)
Interview Name: eLearning expert interviews
Short Biography: University Professor working in the field of ICT, Media and Learning in Umeå University
Site/Location: Skype VoIP
Date of Interview: 10/08/2011
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (2 TAPE TOTAL)
(Out of topic)

DY: Do you agree with the record of the interview?
IJ: Yeah.
DY: Okay. Then, I'm beginning with my first question. Do you think that there is a difference between the e-Learning practices of technical sciences and the social sciences?
IJ: Yeah. You send me a, um, some months before that questionnaire. And, I did read that first question one hour ago, again. And I was really thinking about that answer and I unfortunately, have to say yes and no. I see that the 'no' is, um, because I can not make general-generalizations. So, I can not, because of course, I don't have such studies, if there are special significance or significant differences between the technical and the social sciences.
DY: Mm-hm.
IJ: But, the 'yes' goes to that there is a difference in, 'yes' goes to one, um, is based on my own experience as I'm a researcher and a teacher.
DY: Yes.
IJ: So, what I would answer actually, it depends on the teacher in the technical sciences and it depends on the teachers in the social sciences if there are difference between e-Learning usages.
DY: Mm-hm.
IJ: For example, I was or I'm a social scientist but I worked over 7 years in the informatics department.
DY: Yeah.
IJ: So, I did research as well as teaching and learning in computer sciences studies,
DY: Yeah.
IJ:...and social science studies. So and what?
(sound break)
IJ: Yeah?
DY: huh?
IJ: Are you ok?
DY: I'm listening, it's ok.
IJ: Okay. (laugh). And, um...so, when from that point of view, I would say the informatics, of course informatics is not, is one, at least just one discipline in technical sciences. I mean what do you mean with technical sciences, there are mathematics, and physics, and, for example, production engineering.
DY: Yes.
IJ: But, in informatics, I saw differences. May-may be I have explanations for that because where I have been in informatics in Dortmund and as in Bochum, we also did research about e-Learning. So, of course when you are researcher, you also have your, you change your way teaching, of course. So, what the informatics department did is, that they have a more, um, how can I say that?, a more, um, technical view on e-Learning. They...um...oh, I guess I-I hear me twice that is I have...
DY: There is an echo, you mean?
IJ: Yeah..Okay, may be when it, it will...hopefully it will be ended in some minutes, if not, I need a microphone, also.
DY: Okay.
IJ: So, what informatics did is that we have that more technical view, point of view, for example, we created a lot of new technical devices, web 2.0 ideas, and we also, um, as informatics didn't care about...um, the-the teaching role it was the most the technical point of view, but, in social sciences, um, at least where I have been in Dortmund, there is nothing in e-Learning. So, people who are interested in e-Learning are younger teachers, new teachers, new PhD students who are thinking about their own teaching and, um, who are thinking about what is teaching and what is learning. So, what I see that the technical sciences are more, um, closer at e-Learning science or e-Learning

teaching or in the area. Um, but when I compare the younger teachers in informatics and in social sciences who are.., too proud in my workshops about web 2.0 and e-Learning, they both have the same problems. For example, both have good ideas how to use e-Learning, how to use new technical systems, how to use web 2.0 in teaching and learning but, they think... often too much in the technical point of view. They didn't think about or they don't think about what is my teaching goal, what is my, what is the learning outcome of my students. So, actually, I see differences but I also see no differences that's how to explain.
DY: Mm-hm. Okay. And, shall I continue with the second question?
IJ: If you like (laugh).
DY: Okay. Because I got my short answers for the first question and I want to ask now what's the most important benefit that e-Learning brings to technical sciences?
IJ: Could you explain to me a bit more or do you have examples about what do you mean with most important benefit?
DY: An example, um, this can be, I don't know, for technical sciences may be visualizations or may be e-Learning brings to them a more concrete curriculum, I don't know, what do you think about the benefits of e-Learning brings to technical sciences?
IJ: Ah...Okay.
DY: What kind of benefits?
IJ: Okay. You mean technical sciences with regards to teaching courses in technical sciences?
DY: Yes, the e-Learning courses.
IJ: Okay. Okay, um, oh, I mean there is a huge differences what e-Learning is, I mean e-Learning often is just knowledge management or document management, it stays or it keeps often on the first stage, the teachers want to share their own documents to the people, to the students, so that's one, just one minimal idea of e-Learning and I'm sure you, as well as like me [soundbreak] what?
DY: I didn't hear anything.
IJ: upps?
DY: Now.
IJ: Oh. Are you there?
DY: Yes, I hear.
IJ: Okay, I'm not sure what does, I never had that before. I'm sorry.
DY: No.
IJ: Ok. Should we going on?
DY: Yeah.
IJ: (laugh)...Okay!
[soundbreak]
IJ: I never had that in that computer. I think I need a microphone or something like that.
DY: Okay.
IJ: The problem is I have my, my headset at home. And, okay, let's. We have to go on if we have that problem again. I'll ask a colleague.
DY: But I'm hearing you clearly sometimes the sound goes but it's ok for right now.
IJ: Okay. So I'm sorry for the...
DY: No no.
IJ: Okay, back to the question what's the most important benefit that e-Learning brings to technical sciences,
DY: Yeah.
IJ: Um, okay, I started to explain that is a huge, e-Learning does means, um, there is for example, document management, teachers want to share their documents with their students, then, we have e-Learning as simulation, or we have e-Learning as to foster communication, to foster collaboration among the students and so on. There is a huge field of what e-Learning really means and, um, what it could be for example for the production engineering. I had an European project for production engineering and we did create a kind of a, um, remote laboratory that is a laboratory, a physical laboratory in the university but people can buy a web-based access and webcam, they can from all around the world, they can have an access to that lab and the idea of the lab is that you have, in production engineering, for example, you need material and you need to test the material about the characteristics of that material. So what will e-Learning, this is a benefit for production engineering because we created with Moodle, we created, Moodle was just one access, we created communications rooms and laboratories so that students needs to go to that lab, to create, um...., an experiement to watch that experiement, to make some hypothesis and to explain and to discuss the

results of other students. So one benefit in web 2.0 eLearning is, it is really really easy to create such laboratories and access to such laboratories.
DY: Um, what can be the challenge that eLearning brings to technical sciences?
IJ: Um...
DY: What can be considered as a challenge for technical sciences with regards to eLearning?
IJ: I, again, from my background in informatics, in production engineering, I know that the problem is not a technical point of view. It's more the point how can we teach teachers or how can we create workshops for university teachers that they understand that eLearning is not just a technical point of view. That it's also necessary to think about what is my teaching goal, how can I enable, how can I create opportunuties for learning that my students can learn and then, they need the appropriate technical system for that and I guess this is one challenge. At least, in my, I don't know how many workshops I did in Dortmund, two years in Münster, I was now in Berlin, last months, and um, I, I trained university teachers, I did didactical workshops and I will do some in next years. That I had a lot of experiences in that field and the most important challenge is I guess really that we, we think, for example, from production engineering, a professor, an older one, he is really great such a , I like him. He came to me, two years ago as we started with the European project and he said; 'Frau. Jahnke, this is very interesting and I wasn't sure, I-I wasn't..., I didn't know that there is a difference between teaching and learning''. So, the first, so, this is the challenge in technical sciences. We have to, um..., to explain, or to-to, teaching and learning are different things. That how can we create learning.
DY: ...and, I want to ask the same question, again with regards to social sciences now. What's the most important benefit that eLearning brings to social sciences?
IJ: Um, it actually is very similar to the technical sciences, also in social sciences, at least, in sociology so, I did teach eLearning in a social sciences and sociology, so I think about the pedagogical departments are, these are I can't speak about a language science, also. But for sociological departments, I know that, of course, I also don't know that there is a difference between teaching and learning. But, that is not the problem, Mo-most important, I actually, see as a challenge not the benefit. The challenge is for social sciences that they often can not use the web 2.0 tools. That is a problem in the social sciences. Um, that means that they don't understand how can I use web 2.0. They often say we need classical lectures, we need classical seminars. What is, what is really, web 2.0 and how can I use it. Is-is there any benefit people ask me. And, when I get sociologist in my workshops, in my didactical workshops and my web 2.0 and eLearning workshops, they are really interested in web 2.0. Then, they have, um, the problem that, um, at least, in differences to-to our, with difference to technical sciences. Technical scientists often have the ressources and in social science, they have the problem that there isn't a technical equipment to do eLearning. So, they have , the social sciences often have to use such technical systems what university offers. And what university offers is often old, boring, it's not the eLearning. That's the problem what social sciences have and the benefit what eLearning can bring to social sciences is...that, at least, in the sociological department, it is that we have the classical lectures often in social sciences. There is a teacher and he or she speaks 90 minutes without activate the students. It is a classical boring lecture and eLearning, can be a "Katalysator" ("Converter"), I don't know the english word.
DY: Can you repeat it again?
IJ: Um...yeah, um, eLearning more-has benefit for social sciences when eLearning is kind of a 'Katalysator'.
DY: Katalysator, yeah.
IJ: For, so that the social science people have to think about what teaching and learning really is. So, um...it can, um, it can helps to think about how can we change our, um..., our, how to activate our student groups, for example. How can we create more students learning communities.
DY: And what kind of eLearning tools as instructional media do you think social sciences prefer to use?
IJ: Oh. Could you speed repeat that it was...
DY: What kind of eLearning tools as instructional media do you think that social sciences prefer to use? It is ok?
IJ: Yeah.
DY: Okay.
IJ: Um...Let me first repeat the question, I'm not sure if I understand that correctly. Was your question about the instructional technology or ?
DY: Um, similar. I asked as instructional media, for example, learning management systems, blogs, wikis, web 2.0, augmented reality, etc... and so on.
IJ: Yeah.

DY: Yeah.
IJ: Can you repeat the question again, sorry I?
DY: Okay, okay, no problems. What kind of eLearning tools do you think that social sciences prefer to use?
IJ: Okay, okay, I got it now. (laugh)
DY: No problems.
IJ: Um...um...again, I'm not sure if I can really make general remarks or it is not really good. I can not make any generalations, I can just say um from my experiences so what from my workshops I got a lot of social scientists in my workshops and they...of course, because of tech- the restrict or the restrictions of the technical ressources, um, because of that they prefer such tools, may be, it is an explanation, I'm not sure but what I observed is that they explore or they prefer the more easier, um, the easiest is the not best word but easier tools. For example, in Dortmund University we have wikis, so it's really really easy to use a wiki um, in the internal university system so they use that, because they don't need to install it so they have that. So, social science needs, use such... tools who are already there, who are already exist in a university. I guess, it depends when you are in Hamburg or in Munich, and you have the Munich University for example, offer a totally different tools I guess the social sciences would always try to use that tools who are all, who are already there. Because they don't have the resources to install it or they don't have the technical knowledge. The knowledge about the technology or they don't want to go to the um, um information office or so, I'm not sure why, but they use what already what the university has. And, in Dortmund it was a wiki, and in other um...universities, it was Moodle and Moodle offers and blogs also, but blogs for example, I had a lot of ideas how to use blogs and then...the problem is in my workshops, I have five examples, for example wiki, use of wiki, (confusion), use of blogs, the student generated web tools, and um, I had five examples but often the people in my workshops in Dortmund use a wiki example because they already using wikis in Dortmund but in Düsseldorf, there is Moodle and there is a blog included, so they use a blog, for example. So, I'm not sure if we really can say that there is a tool, um, from my research point of view I can not say that but that this depends on I have too less information about that I can not really compare.
DY: Yeah. Okay, then. I will ask the same question for technical sciences point of view, what kind of eLearning tools do you think that technical sciences prefer to use?
IJ: The technical sciences are more broader because they have the technical resources to say okay, we are interested in blogs, we install wordpress, or in production engineering we do, for example, the remote laboratory and we have the informatics, stu-students from informatics who, um, helps us to build that programs us tool we need. And this is also true for informatics where I had been in Bochum, we did a lot of different things, blogs, netvibes and, um, wiki actually was not so in focus of informatics,
DY: Mm-hm.
IJ:...this is really interesting. We more focus on classical document management systems like ?(DSCW)?, it is of [inaudible segment] tool and um, so, and other document management systems and knowledge management and but what else we use, in informatics is actually? I as a for example, in the um, um, economy science, the professor there in Essen, he created an own tool, this is called student generated web tools. You can see that on my publication list,
DY: Okay.
IJ:...we published an article about it. And this is, this was really interesting. So, the informatics I would say, this is my thesis or my hypothesis, informatics are more closed to we can also build an our web tools and we use a range of, huge range of different tools and social science are rather decided to use what do we have in our university. They use that what we have at the university not everything we use. They decide to use or they prefer to use that tools that they have. So, the decision, the way of the decision, is um, in social science and in technical sciences may be a difference, social sciences decide based on what university can offer and the technical people, the technical sciences decide it doesn't matter what university has because we can use web 2.0 we can build it, we have our own server, we can install everything we would like to have.
DY: Mm-hm.
IJ: So may be that's one hypothesis from my background.
DY: Thank you, you explained it very well that I can get a lot of resources for my thesis.
IJ: Good. (laugh)
DY: And, I'm skipping to the next question. What kind of eLearning scenarios do you think that social sciences prefer to use?
IJ: Do you have a special definition for scenario or... ?

DY: I thought like, for example, it can be a problem solving, virtual seminar or field trip, web conference, discussion forums...
IJ: Okay in technical or social sciences?
DY: First, social sciences and then technical sciences.
IJ: Okay, I um, I know Johannes Wildt, he has created a kind of a um, facets where we say, what, so we have problem based learning, we have research based learning at the top we have project based learning and we have instruction based learning, um, discover, um, I'm not sure what it was, we have several types of learning and your question is what do you think, what I'm think, what...
DY: The social sciences as an eLearning scenario prefer to use?
IJ: Yeah, okay. Again, this is um...um, I'm not sure I have so many ideas in my mind. For example, we had problem based learning project in Dortmund in the centre of research on higher education. We have a project of problem based learning because problem based learning is a well known in Skandinavia and Netherlands.
DY: Mm-hm.
IJ: And, often in the area of medical faculties, departments. And the project research or actually, I mean they are almost done, they did research how can we transfer...the problem based learning is good and can we transfer it to the German universities. And, I'm not sure in what kind of areas they are, in what kind of disciplines they did, they made that research. Was it medical faculties or was it social sciences, that was really interesting. So what I know from Germany, is the problem based learning is not so well known like in other countries, for example. So, coming back to your question I also will say the problem based learning are not so well known in eLearning scenarios. But I'm really not sure about that. What I know from production engineering is they prefer simulations.
[soundbreak]
DY: Simulations?
IJ: Ja.
[soundbreak]

END OF TAPE 1.
START OF TAPE 2 . (2 TAPES TOTAL)

IJ: Oh my Gosh, what was that (laugh)?
DY: Can you hear me now, I can hear you.
IJ: (laugh).
IJ: Okay.
DY: Okay.
IJ: That was, web 2.0 is sometimes a bit.
DY: ...and I’m in Turkey now, may be it is because of that I want to say but I don't know.
IJ:Yeah, it is interesting. Skype doesn't work.
DY: Okay.
IJ: Okay, so for technical sciences I would say they use often such simulations like the production engineering they use a lab, lab is more than simulation but I know from other production engineering departments, technical sciences,
DY: Mm-hm.
IJ: ...they use often such eLearning to simulate something. I'm not sure what the main is for what we did in the European project it is-it is a real experiment so, the simulation and the real experiments are supported through eLearning,
DY: Mm-hm.
IJ:...and in social sciences is more um, for example, when I'm thinking about my own..., um, seminars, I often prefer such how to foster reflective learning. I would, my teaching goal is, also were, um, that I um-um, want to support reflection the students reflect their work and what they, um, do, what they did, for example, one of my topic in sociology was "social change",
DY: Mm-hm.
IJ:...and the students have to do actually a classical um-um work that they...write something ten pages in the group of three people.But, I use a wiki for that,
DY: Mm-hm.
IJ:...and they put it into the wiki so the people could see what the process of the other groups were and I had three deadlines. So that, I gave feedbacks after the first four weeks then after two months and after three months so they get feedback to special assignments I, I created in the first um-um class. So, I would say this is a kind of reflective learning or I'm not sure is there a special word for that.

DY: Mm-hm.
IJ: But we say reflective learning to that and the idea is, it is blended learning,
DY: Mm-hm.
IJ:...eLearning what I did was a blended learning tool, so, in social sciences, eLearning is more a kind of possibility to foster reflection to support communication, to foster collaboration,
DY: Mm-hm.
IJ:...and often it is done, they have to do, they have to write something, they, technical sciences, they have to create a software program, they have to program something, but they have to watch something, and they have to create a simulation, for example.
DY: Mm-hm.
IJ: So, this is at least some difference that we can not do in the last years, I'm not sure that we have this differences in some years but, um, I guess from, from my background that is one difference.
DY: Mm-hm. Okay. And what do you think about the social forms of students such as individual works or teamwork, group works on eLearning environments with regards to social sciences?
IJ: I mean since I'm a researcher in that field, I...I say we need individual learning. And, we need facets of individual and collaborative learning, we need both.
DY: Mm-hm.
IJ: And the teacher has to enable situations where both is possible,
DY: Mm-hm.
IJ:...and, so, this is very important. For example, in my social science studies or yeah, studies, I always had the facets where the people think about their topics, their, they had to create questionnaires, they had to, um, um, um, create, um, interviews with experts, they have to write about that, about the results and empirical study. And, they of course, they, um, they had to cite some theoretical frameworks and put it in a research work and in a kind of a research paper.
DY: Mm-hm.
IJ: And, of course there are facets where they have to work together, collaboratively. So, since I'm a researcher in that field. I know both forms are important and here at least in Umea at the our department, they also prefer putting both forms together. Coming back to your question, so, in social sciences,
DY: Mm-hm.
IJ:...as well as in technical, also, this is very interesting. I'm not sure, I guess, the problem is I just answered that question based on my background,
DY: Yes.
IJ: ...and what I did in my projects that often I involved my project that both, we need both forms so there is no differences in informatics, production engineering or social sciences. I always did say, we we need both forms but I, this depends really also because I'm a researcher in that field.
DY: Yes.
IJ: And I guess you ask lecturers or teachers in both fields.
DY: Mm-hm.
IJ: You really got different answers, I guess.
DY: Yeah, my aim is that I can compare it with the expert interviews. I think really interesting results will come out and then.
IJ: Yeah, yeah, that's, yeah, I guess the most interesting things will be the-the-the interviews with the teachers in that field.
DY: Mm-hm.
IJ: So, that may be how they perceive the world, yeah, yeah, absolutely, yeah. This is really interesting.
DY: And, shall I continue?
IJ: Yeah. (laugh)
DY: Okay. Could you please evaluate the importance of collaboration and communication in eLearning atmosphere from both sciences point of view?
IJ: Um, yes I, you mean the atmosphere?
DY: I mean how important is collaboration and communication within a social sciences and comparing the technical sciences?
IJ: Yeah. Of course, both in both sciences, in both fields, it's absolutely important because, learning for me means, you have to communicate, you have to collect, learning is always, um, learning takes always place in collaboration with other people. So, you need individuals and you need collaboration. I'm following 'Gerry Stahl' he is well-known in computer supported collaborative learning scientific community and he is, he is, he is, really really CSCL collaboration researcher in learning. And, um, I

follow him, and I also say we can not create learning without collaboration without enable collaboration,
DY: Mm-hm.
IJ:...so, of course, interaction, communication. This is what we need to do but, when you ask the question you also have to reflect regarding what teaching goal. When you have teaching goal in informatics, we need new product and students should create a new product. Then, you need collaboration, you need teams who build new software programs.
DY: Yeah.
IJ: Um, and in, production engineering, when people become an engineer, of course, they will work together in a team in the future, they can learn in lab, laboratory or in simulation, how can they work togetherand solve problem that occur at work. So, we need interaction, communication besides that um, professional knowledge. We also need competencies or competence development regarding social competencies and methods and so on, and so on, of course, we need that and as I said for the social forms when I'm involved in such research or teaching areas then I always say we, teaching also means, we have to enable such possi- opportunuties where students also have the opportunity to interact and communicate. We have to design that in advance so that they can really do it. So, it doesn't make sense to say this is your task and to do it, um, please give me the answer then of course each student, each student will do it on her or his own, but we have to say, make it in teams, to do it in team, this is a bit complicated, I describe it, now.
DY: Yes.
IJ: So in my point of view that in my practice, there is 'NO' differences but I would say the, um..., I would say technical sciences are more aware that collaboration is needed than the social sciences,
DY: Mm-hm.
IJ: ...that would be my hypothesis.
DY: Okay, you say that many to many communication and participatory communication is very important for both sciences.
IJ: Yeah, but my hypothesis,
DY: Mm-hm.
IJ:...is that, is, is, the technical sciences are more aware than social sciences. That's really important in communication processes than social sciences has, have.
DY: And, if a software or an electronic environment have to be created to enable eLearning, how would it look like for social sciences? Do you have an idea? It is very problematic question in my questionnaire. I do also pre-test and in the pre-test, it was problematic but also I received nice answers.
IJ: Was the question, um, what would I create?
DY: Yes, for example, if a software or electronic environment specifically for social sciences should be designed. How would it look like?
IJ: Mm, um, I do, first it depends on the teaching goal what is my teaching goal.
DY: Mm-hm.
IJ: Do I have the teaching goal in the first sense or people have to think about or learn professional knowledge. For example, technical terms like what is social change or in informatics what is a computer system. Then, it is a different eLearning system than when I have intermediate or expert students in my classes, for example, in the last year of their studies when they have to build entire new social software systems or in production engineering, they have to create, um, I don't know, a new material, also, I'm not an engineer, or in social sciences, they have to create a master thesis,
DY: Mm-hm.
IJ:...so, of course, it depends on the teaching goal. Then, I need special functionalities.
DY: Uh-huh.
IJ: And what we have today in our web 2.0, the range of our web 2.0 possibilities and tools is really really great. So, actually, we have a lot of, and we don't, I'm not sure, if we, of course, we need some new functions, but we have a lot of good things for the social sciences. I would prefer wikis and blogs.
DY: Mm-hm.
IJ: So, the process to write something is in the focus of social sciences. And, when we want to reflect the, the, the, when we want to foster critical thinking and critcal actions when we would like to have creative students then we can use wikis, blogs, and we can of course, use didactical content for that but these are really great tools and, of course, for production engineering. It depends on the teaching goal. When we want to have a laboratory then we need more sophisticated tools, may be we need some more things, we don't have now but we can easily base on the web 2.0 philo-philosophy. We can easily create such tools and for informatics, it, I'm not sure but I guess when one teaching goal is

they have to learn how to create software for special area. Then, the collaboration in teams is important, we have a lot web 2.0 tools who fosters it, collaboration. A lot of wikis, or Moodle or Blackboard or I'm not sure really Blackboard and Moodle is, web 2.0 is more...big system. So, what I would like to say is we don't need for social sciences as well as for technical sciences, we don't need that big system who can support anything. Teachers in the world would like to have, that's too complicated. We need, we have to think, first, what's my teaching goal and then, we, on the, we should range the possibilities we have in a web 2.0 world. Um, um,...video interaction would be good like Bambooza or Facebook groups, I'm not sure. There's alot of things to do. Um-um, then, we have to decide what do we need really for my teaching goal. For example, when we want to create mobile learning, and we want to use ipad or iphones, then, we need new software systems because this is not designed for such small smartphones, we need to adjust some software systems to that. But, my...my idea of eLearning, in the broader field of eLearning or learning with web 2.0 tools with media, new media is that we don't need Blackboard, Moodle or that big systems, that is too complicated for the teachers as well as for students. We just need the right functions, that's the question always is what is my teaching goal, and do I have a software system with the functions I needed to achieve that teaching goal.
DY: Yes.
IJ: Oh...it's almost one and an half hour, ninty minutes lecture (laugh)
DY: Okay. Do you have an idea like eLearning is more suitable to social sciences or technical sciences?
IJ: What do you mean with suitable, you mean in the sense of its...
DY: Do you have an idea like, okay, social sciences, sorry, eLearning is more suitable to social sciences rather than teachnical sciences or the other way around?
IJ: No, I guess, you can not say that it depends always on what's your teaching goal,
DY: Mm-hm.
IJ:...it, it's, it depends on what's the teaching goal and what besides my professional knowledge, I would like, to..., to, to, um, I would like to focus on what kind of competences and what other learning outcomes, can students develop and you have to think what kind of technical systems do I need to do that.
DY: And my last question, when you were conducting the same research study that I'm conducting now, um, what would you ask as a main question to lecturers?
IJ: Mm, that's a good question (laugh). Um, let me think some seconds, um, actually, I would start with a really really open question, I would say the problem is we have to find people in that, in both sciences who are, who use eLearning already. So, when you have that problem solved and when you ask people who are using eLearning, the broader sense of eLearning, then, I would start with a really really open question, I would say please think about your last semester,
DY: Mm-hm.
IJ:...when you did use eLearning, could you describe it to me what have you done there. How is your course, what is your, how many people students did you have? How-What was your didactical idea?What's the process? How did you include the-the tools?, um, What tools did you use? How did you decided to use? And, but I would start with the first question, please describe!, and then, I would let, yeah, I would let people describe it when they don't know what to say I would ask the question I asked like. How many students you have? what's the didactical, what's the...? so, the idea is, I guess you need a better understanding, not you but as a researcher, need a better understanding for the people who use eLearning and so that's the idea. Actually, it is the same question, I did asked when we did our creativity project. We asked okay, we get a lot of people who get- who get an award or who are really good ranked in ?(mycom.de)? and we asked to teacher, students decided you are realy creative or other people decided you to get a reward. You are, you make creative teaching, so please explain us what did you do, what have you done with regards to your teaching classes. And then, they, we did twenty interviews and the teachers were in teacher's room in their offices and some teachers are so interested in, they showed us the informatics or production engineering or social science environment and often it was really really creative environment itself. It was really creative so you can see in what kind of area does the interviewee, um-um, works. So that's really important, I would start with a really open question, your eLearning scenario for me with regards to what have you done. So that's the people not say what they would like to do, they should answer you what they really did and what they do. This is really important I think.
DY: Mm-hm. Thank you. Is there anything you would like to add or how did the interview feel for you? Generally?

IJ: (laugh) Um, no, I don't want anything to add. I was, I guess it's really really great idea to make such interviews particularly when you int..., when you will interview the lecturers from special areas, I guess this is really really interesting study, it's really good PhD, um, topic.
DY: Thank you very much (laugh).
IJ: I'm not sure if you can learned anything from me because I really have that more design based perspective than I'm a researcher in teaching and learning field. I do also teaching in that in both sciences, so, of course, I don't see so many differences, so I'm not sure, if you can really...
DY: I got valuable informations from you and from your experiences, it is very glad for me (laugh).
IJ: Okay.
DY: Thank you for your contribution and for your time that you spend for this interview and I'll send you a short summary of the whole PhD thesis when I'm finished.
IJ: Oh. That's great. Yeah.
DY: Thank you a lot again.
IJ: So, if you need anything else, please send me an e-mail.
DY: Oh, thank you. Have a nice day.
IJ: Yeah, you too!
DY: Bye Bye.

END OF TAPE 2 (2 TAPES TOTAL)
END OF THE INTERVIEW.

Participant ID: Dr. Tobias Jenert
Interview Name: eLearning expert interviews
Short Biography: Researcher in the field of Business Education and Educational Management at the University of St.Gallen in Switzerland
Site/Location: Skype VoIP
Date of Interview: 25/10/2011
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (1 TAPE TOTAL)
(out of topic)

DY: And do you agree with the record of the interview?
TJ: Yes, sure.
DY: Okay. Let me begin with my first question. Do you think that there is a difference between the eLearning prctices of technical sciences and social sciences?
TJ: Mm.
DY: Mm. (strong short laugh)
TJ: Yeah. That is a very general question.
DY: Yeah.
TJ: It is very hard to determine. I mean, probably if you, if you go a little bit down, um, if you just take this one variable, there would probably be differences.
DY: Mm-hm.
TJ: Either, I would say that in practice, um, a lot of differences are also determined by the institution, for example, the kind of higher education institution; the technical infrastructure, um, also, the money that, um, is provided by the institution or by the government or [inaudible segment] some money, so the budget considerations. So, I think... there might be an influence. So, it might be one, one variable but there might also be a lot of other variables that could be more important or that could also be important for individual case.
DY: But generally you believe that there is a difference between them?
TJ:Mm. I, yea-yeah, I mean, I'm not, no, I'm not so sure.
DY: Mm-hm.
TJ: Bacause, I-I would rather say that it is not, in this case, it is not about, I know that in general, you talk about disciplinary differences,
DY: Mm-hm.
TJ: Differences between bigger disciplines, in this case I would rather say, differences between subjects. For example, I would assume that, um, in... if you take, um, a german technische hochschule, technische universitaet, and you have, um for example, um, department of pedagogy,
DY: Mm-hm.
TJ: ...or erziehungswissenschaft at the TU in Germany,
DY: Mm,hm.
TJ: They will probably have very advanced concepts in, um, eLearning.
DY: Yes.
TJ: Um, both from the technological and the pedagogical point of view.
DY: Mm-hm.
TJ: However, if you take, um, um, pedagogical department at a normal university any small university in Germany, they will probably not have very elaborated eLearning concepts because they don't have the technological knowledge or perhaps the motivation to engage in the world of eLearning.
DY: Mm-hm.
TJ: So, I think it's, it is very complicated to have, to reduce it to the subject only in this case. I think there is always a combination between the subject and the institution.
DY: Okay, that's why, you bind the um, for example, you said it's depending on the kind of higher education institution,
TJ: Yeah.
DY: That's why, you bind this, um, concepts to the kind of higher education institution, right?
DY: The differences...
TJ: Yeah.
DY: Okay.
TJ: I would say both, yeah, combination of institution and subject or discipline.

DY: Okay.
TY: Yeah.
DY: Mm-hm. And, what is the most important benefit that eLearning brings to technical sciences in your opinion?
TJ: Um (short laugh), I'm not in the technical sciences, I'm in the business school and I'm um, by education,
DY: Mm-hm.
TJ: ...in education, so that's-that's, um, not easy to determine for me.
DY: Mm-hm.
TJ: I could rather tell you what it brings for pedagogy and I could probably tell what it brings for business schools.
DY: Mm-hm.
TJ: But I'm not sure if I can tell you what it brings for...
DY: Actually, what can be a benefit then, for the technical sciences with regard to eLearning?
TJ: Um, perhaps you should, you should, um, be a bit more concrete what you call as technical sciences, you mean like engineering...?
DY: I mean engineering sciences, right.
TJ: Okay, okay, you know, I suppose that, um, from where I know there is a lot of simulation going on there,
DY: Mm-hm.
TJ: I know it from, um, mostly from medicine which isn't exactly engineering but I suppose there are some kind of similarities, yeah. Um, all the simulation that has advanced a lot in recent years,
DY: Mm-hm.
TJ: Um, what I also see that there is, at least, in the..., in those subjects that have high student numbers, there is a lot of, um, assessment, e-assessment, [inaudible segment], in these disciplines specially, um, I think there could be a really elaborate concepts in the future, um, well, I think from the pedagogical point of view,
DY: Mm-hm.
TJ: ...provided value would mostly be in the simulation, um and more or less, bring to laboratory,
DY: Mm-hm.
TJ: ...or simulating the laboratory for them.
DY: Mm-hm. and what..
[overlapping speech of both sides]
TJ: sorry.
DY: I'm sorry. Shall I continue?
TJ: Yeah, sure.
DY: What can be the most important challenge that eLearning brings to technical sciences? Only an opinion.
TJ: Oh...that is really hard for me, or for us for my boss as well, be in the, being in the economic, um, being in the economic environment. We don't have technical sciences here,
DY: Okay.
TJ: We are strictly a business school. So that's probably hard to determine.
DY: Okay. Let us just skip.
DY: Um...I'm asking the same question for the social sciences right now.
TJ: Ah, okay.
DY: (laugh) What is the most important benefit that eLearning brings to social sciences?
TJ: Um..., I have to, um, differentiate between two major aspects. The first aspect would be... if you ask for example, um, our management,
DY: Mm-hm.
TJ: ...at our business school. And, if you ask the management it could be, yeah well, we can, for example, reduce costs by distributing learning materials, um, and basicly this aspect of eLearning really, um, functions on an everday basis this is really working now,
DY:Mm-hm.
TJ: You know we have lots of pdf's distributed and while our LMS is working,
DY: Mm-hm.
TY: Um, we-we are doing the course management by the LMS, you know every student have his or her account and so. This would be one benefit. So, we have audio course structure, um, in this virtual environment.
DY: Yes.

TJ: This would be one and...and if you look at an economic point of view, this will probably have a benefit.
DY: Mm-hm.
TJ: I think in recent years has also become a must at least for, um, yeah, probably for most universities. It has become a must to have for example, an LMS.
DY: Mm-hm.
TJ: I think it's a kind of strange if you want to be regarded, highly regarded university, um, or higher education institution, and you don't have an LMS.
DY: Mm-hm.
TJ: So, this is also a benefit from a, um, I mean economic point of view. I said this is hygiene factor, from an economic point of view, you know.
DY: Yes.
TJ: So probably, people will regard your university a bit of suspicient, if you just don't have any eLearning infrastructure in place.
DY: Yes.
TJ: The second thing, would be the pedagogical aspects and there I would say, um, at least, when I look at my university, um, there is a lot of potentials there but they still have to be, um, actualized, they still have to be put into practice. I mean you, you, all the ideas about, um, for example, mobile learning, now, you have all the ideas about more active learning, um, for example, involving students in e-portfolios, in blogging, in, um, doing whatever, doing more communication and so on, and, um...this is what I think has still to be developed, you know. Um, looking at my own, one of my communities, um, I perceive that there is always small developments, for example, the-the , e-portfolio hype has been around for last few years but they are declinning and declinning and what stays is really the LMS, it has been established now but, um, the more elaborate innovations, um, they stay limited to a few- a few initiatives, um, at the few institutions, um, there is still some work to do to get this into-into practice with all the scale.
DY: Mm-hm.
TJ:Yeah... so this would be the two contributions.
DY: Mm-hm. And what is the most important challenge that eLearning brings to social sciences? Can we take your second aspect to the challenge part?
TJ: Yeah. Sure. I mean, the second aspect would be a challenge part sure.
DY: Mm-hm.
TJ: ...and, um, I think there is I would call it 'eLearning paradox' at the moment.
DY: Mm-hm.
TJ: Because if you talk to people, um, in the management of higher education institution, and institutions, they will probably see eLearning as something to reduce costs.
DY: Mm-hm.
TJ: Or at least, not to produce more costs you know.
DY: Yes.
TJ: So, they will say well, if we have an LMS, this should surely contribute to some, this should generate value you know.
DY: Mm-hm.
TJ: However, this would be the one thing, the paradox is now that if we want to have like, um, high level, high value eLearning, from a pedagogical view point,
DY: Mm-hm.
TJ: this means a lot of investments because for example, you can not have e-portfolio work without a lot of tutoring. E-portfolios mean a lot of tutoring. And, we last year we did a project courseware students would blog during the project works and blog on their project work.
DY: Mm-hm.
TJ: It costs as huge amounts of tutoring, and of teaching resources, to really get this project going to really give feedbacks on the bloggings and so on.
DY: Yes.
TJ: So, actually there is the paradox that, in the heads of many, um, people who are responsible for the large scale infrastructures is there to reduce costs.
DY: Yeah.
TJ: However, if you want to have this high level eLearning,
DY: Mm-hm.
TJ: Or, technology enhanced learning, this would probably generate costs but not in the domain of infrastructure or technical costs,

DY: Mm-hm.
TJ: But, probably, it will generate very traditional costs you know.
DY: Yes.
TJ. It will generate costs that our, for example, related with, um, teaching hours or with the in famous Lehrdeputat[10],
DY: Mm-hm.
TJ: In german speaking countries.
DY: Yeah.
TJ: Um, so, there is a paradox and I think this has, I mean, many people realize this paradox but I think it, um, really isn't globaized or discussed that much at the moment, it is not like in the heads of those who don't support establishing large scale initiatives, and I think that is one of the reason why, there are not many initiatives around, um, where...for example, web 2.0 learning is implemented successfully. Because, it once implemented, the problem we have to generate, I don't know, many more compositions for e-tutors, for people who are proficient,
DY: Mm-hm.
TJ: ....in this kind of eLearning.
DY: Yes.
TJ: Yeah.
DY: And what kind of eLearning tools as instructional media do you think social sciences prefer to use?
TJ: (Laughing) That's the same thing, I mean.
DY: Yes.
TJ: The question is what they actually prefer to use at the moment,
DY: Mm-hm.
TJ: ...and what they should use to-to really generate, um, added value from a, from a, learning point of view.
DY: Mm-hm.
TJ: And if, um, just stay with what we are actually using, then, I would say at the moment they are probably using most the traditional, I mean, for most part the traditional LMSs,
DY: Mm-hm.
TJ: ...and, yeah well, that's it for most part and I think that there are, um, not just a few but actually many disciplines around in the social sciences that are quite persistent, um, to eLearning. And that's, again that's generalized but I think there are a lot of very traditional subjects for example, sociology, would spring to my mind that sociologist are really ready to embrace eLearning for example, or more elaborate or advanced eLearning concepts.
DY: Mm-hm.
TJ: I have heard of that. Um, so, it's for most part it stays limited to, um, subject areas that are in some way connected I would say to, um, pedagogy to education in some way or another.
DY. Yes.
TJ: Um, and then, the second thing is what I think what they should embrace what would be a good match for them.
DY: Mm-hm.
TJ: And there, I would say... probably it is, um, things that go beyond the LMS.
DY: Mm-hm.
TJ: For example, um, methods that help students link their, um, classroom learning with practical experiences. There was, there was an issue of the "Zeitschrift für e-Learning[11]", um, around the beginning of 2011 or I don't know in summer,
DY: Yes.
TJ: ...and, um, they for example, asked the question how can eLearning help to link practical facets during your study time with, um, the, the facets you spend at the university. So, this would be the one very typical question for the social sciences on how they might use eLearning and then, of course you have things like, okay, when they are doing an internship they could blog for example, um, and try to apply what they have learned in university during their internship.

[10] Teaching Load
[11] German Journal of eLearning (http://www.e-learning-zeitschrift.org)

DY: Mm-hm.
TJ: Um, they could for example, engage in social networks, and yeah, try to build networks where they interchange or exchange their experiences during internships.
DY: Mm-hm.
TJ: They could produce podcasts for their colleagues, for their fellows, um, for the peers in univeristy and so on, and so on, and so on.
DY: Mm-hm.
TJ: So, I think this kind of eLearning would really be an added value for social sciences. However, it is not put into place, put into practice that much, yet.
DY: Okay.
TJ: Yeah.
DY: And, what do you think, what kind of eLearning tools technical sciences prefer to use?
TJ: (Laughing) That's, um, just a guess.
DY: Yes.
TJ: But, I would say that technical sciences probably prefer to use simulations, um, they would prefer to use e-assessment, if you call that an eLearning tool.
DY: Mm-hm.
TJ: Um, I know for example, um, again in medicine, it is not a technical sciences but I know, for example in medicine that in some universities, they actually like to have only like enhanced powerpoint slides like minipodcast,
DY: Mm-hm.
TJ:...together powerpoint slides, just to have high valued resources for self-study.
DY: Yes.
TJ: That would also be something for them cause they have often large amounts of just knowledge, factual knowledge that they have to take in then doing more practice during their, um, in course times, so, I would say, yeah, these kinds of thing would be typical for engineering sciences,
DY: Tech....
TJ: ...and for technical sciences.
DY: Yes. And, what kind of eLearning scenarios do you think that social sciences prefer to use?
TJ: Um, yeah, well, prefer to use, it's again the thing I've just said. At the moment, I think social sciences prefer to use eLearning mostly as a means for distributing,
DY: Mm-hm.
TJ: ....materials.
DY: Mm-hm.
TJ: For distributing, for example, um, journal articles for the students to read, or for the students for example group work, um, for distributing their slides, um, perhaps what could be, um, broader used, what could be like fora, you know, for students to ask questions,
DY: Mm-hm.
TJ: Um, I think, that's good for the most part. In general, they prefer to use that. And then, what they should prefer to use I just mentioned.
DY: Mm-hm.
TJ: You know, the students interaction and so on.
DY: And, what do you think about technical sciences? What do they prefer to use? Or do you have an idea?
TJ: Actually, it is very limited to field experiences I have, working together with the fields from the ITH (Industrie Technische Konstruktionen) for example, and, um, I know that they are really doing lots of-of simulations, yeah, well, of-of, actually things to enhance, for example, classroom presentation, I mean, um, I know from the colleagues from ?(IPFL)?, a lot of, there are computer sciences, they are doing a lot of, work with a lot of simulations, um, to for-for example, enhance models, um, in classroom. So, for example, that would be the most prefered vacations for eLearning.
DY:Okay.
TJ: So, then again for me in the social sciences, the lights are blurry there because they always do a lot of simulating on the computer, they always do a lot of modelling,
DY: Mm-hm.
TJ: ...on technical processes they always, for example, do CAD constructions,
DY: Mm-hm.
TJ: And, they have always done this and they wouldn't probably call it eLearning.
DY:Yeah.
TJ: But, you could call it eLearning,

DY: Yes.
TJ: ...from educational perspective.
DY: Mm-hm.
TJ: So, the lights are very blurry there. And, It is really hard to say, is that eLearning or is it just their work so if they use it for their work, it is probably, also, eLearning.
DY: Mm,hm. Yes.
TJ:There's very blurry lights there.
DY: It is also a paradox, I think (laugh).
TJ: Yeah (laugh).
DY: Okay, what do you think about the social forms of students such as individual work/team work on eLearning evironments with regards to social sciences?
TJ: Mm-hm. Um, I think...that's something, um, I mean in the social sciences in general, there is a lot of group work around.
DY: Mm-hm.
TJ: Um, it's quite established. There are really simple forms of group work just doing a presentation together or writing a term paper together,
DY: Mm-hm.
TJ: That is a very very common.
DY: Yes.
TJ: Um..., and certainly, this is to some degree also reflected in eLearning scenarios that already in place.
DY: Mm.
TJ: For example, very very very basic thing, if you use the LMS just to, um, build your groups, for, yeah, just to build your groups or, um, give them, provide them what is the base to interact,
DY: Mm-hm.
TJ: Um, and I think, um, in the very basic form nowadays students use the internet a lot to enhance their group work. I mean the most basic thing that could be now that is nothing very special but for example, I know a lot of students, and I myself as a student, who use, for example, google docs,
DY: Mm, yes.
TJ: ...just to write the term papers and who use Doodle to, um, to-to schedule meetings, who use for example Dropbox a lot.
DY: Mm-hm.
TJ: And, I mean these are all, um, [inaudible segment] applications that around now. We use [inaudible segment] calendars, for example.
DY: Mm-hm.
TJ: These tools, I mean, the most important thing is that these tools can put into place strategically by eLearning professionals.
DY: Mm-hm.
TJ: They are used by buttom approach, this is by students.
DY: Yes. Well, you mean that the lecturers are not recommending to use that tools but students are willing to use that tools when they are willing to do groupwork with each other?
TJ: I- I'm not sure, I mean, yeah, I mean this would be on the lecturer level, you know, but, I mean a university doesn't provide their own google calendar for the students.
DY: Mm-hm, yes.
TJ: So, it's not our eLearning team for example, that provide a Google calendar to the students but the students will use the original Google calendar and use it when they are doing teamwork when they do teamwork.
DY: Yes.
TJ: So, this is a quite interesting development because there is some form of eLearning taking place,
DY: Mm-hm.
TJ:...or some kind of technology usage in learning, so, it's, technology enhanced learning.
DY: Yes.
TJ: But it is not, um, in the classical sense that it is provided by the university or it is provided by the lecturer, for example.
DY: Mm-hm.
TJ: They just, um, take an hold of it themselves.
DY: Yes.
TJ: But, use it as a form of, um, technology enhanced learning.
DY: Mm-hm.

TJ:So, um, probably there are a lot of groupwork scenarios in place in the social sciences.
DY: Mm-hm.
TJ:I would say that are also technology enhanced.
DY: Mm-hm.
TJ: However, they are not necessarily modeled or provided by the institution or by the lecturer, but they are created by the students themselves. So, what is provided is, for example, the task, okay, write a term-paper in groups of four,
DY: Mm-hm.
TJ: ...find or just form your groups yourselves, and, um, just do the process of group work yourselves and then, the students will automatically, use tools that are out there in the cloud themsleves,
DY: Yes.
TJ: to, um, yeah, to enhance their, just the group process.
DY: Mm-hm.
TJ: But, it is not provided in classical sense by the univerisities. And what I noticed, that is also the next paradox, a lot of paradox is around.
DY: Yeah.
TJ: Um, I have colleagues, for example, we also did this blogging project that have provided tools that enhance collaboration.
DY: Mm.
TJ: at the university of Augsburg for example,
DY: Mm-hm.
TJ: So, they encouraged them for example to use, I think, um, Google Docs or something like that.
DY: Mm-hm.
TJ: When they encouraged the students they wouldn't use it.
DY: Uh-huh.
TJ: So, when they told them you have to use Google Docs, they wouldn't or they would use it and they would say, 'Ah, it is not that good', you know. They don't need it.
DY: Yes.
TJ: However, in many other cases, they would use it. So, it is a kind of, I would say, yeah, the feeling that, the feeling of necessity,
DY:Mm.
TJ:...is very hard to determine if you tell the use it, because it is good they will say 'Ah!', probably at the moment, it is not even necessary.
DY: Yes.
TJ: But if they feel the need because, one guy is on holiday and the other guy, um, has an internship it starts two weeks in the semester, and the third guy is away at his girlfriend's living in Munich, although his university is in St. Gallen. Then, they will probably say, um, let's just Doodle to have one meeting before we face each other and let's do the rest in google docs and let's schedule all of our working in Google Calendar, for example.
DY: Yes (short laugh).
TJ: But if you tell them, it is very important to use this because it is good for your group work, they will say, 'Yeah, we know how to do group work we don't need this!' you know, 'We use it when we need it.'
DY: Mm-hm.
TJ: That'-That's a, that's the thing that goes on, um, in collaboration. So, to really see what's going on, concerning group work or collaboration in eLearning, you will have to analyse what students actually use,
DY: Mm-hm.
TJ:...and not what is provided by the universities.
DY: Mm-hm.
TJ:I think there's a lot of collaboration, e-collaboration around that is not that visible because, because students are not provided with it by their university.
DY: Yes.
TJ: Another thing, that is very important but I don't know if it's, um, common in every university is for example, the usage of social networks.
DY: Mm-hm.
TJ: I mean at my university in St. Gallen students are organizing everything via Facebook, for example.
DY: Mm.

TJ:They even organized a protest against one test, one assessment, they said the exam was too hard, was unfair or whatever,
DY: Yes.
TJ: They organized a hidden facebook, protest.
DY: Interesting (short laugh).
TJ: I think they all wrote e-mails to this one lecturer (continuous laugh) and try to bomb him to answer them and so on and so on.
DY: Mm-hm.
TJ: And they would do that on a regular basis, you know. They would discuss...
DY: Yes, very participative...
TJ:hm?
DY: Very participative, I said.
TJ: Yeah. It is but the thing is it's invisible you know.
DY: Yeah.
TJ: We don't see it, we as, as, I would say eLearning professionals, want to know, we don't see these posts. Because students won't tell us it's hidden. I mean, we only saw it because, we had a lawyer, we had a lawyer, we have to monitor this a bit that they won't actually do things that are against the law, you know.
DY: Mm-hm.
TJ: But, um, as eLearning professionals as people working with pedagogical concepts, as you called it eLearning scenarios, we don't see it although it is a hidden eLearning scenario.
DY: Mm-hm.
TJ: The informal eLearning scenario.
DY: Yes.
TJ: That's very participative and very collaborative actually,
DY: Mm-hm.
TJ: ...very networked.
DY: Okay, I asked the same question for technical sciences what do you think about the social forms of students such as individual work or group work on eLearning environments with regards to technical sciences? If you want you can also skip.
TJ: I don't know it.
DY: Yeah.
TJ:I only know, with regard to eLearning I don't know, I only know, there suppose to be differences, um, in collaborative work in traditional settings, that would be you know the traditional research on disciplinary cultures.
DY: Mm-hm.
TJ: And there, suppose to be differences concernning group work, I mean that would be interesting if it's also the case in eLearning setting. If this transfers to eLearning settings but this is probably a research. So, I don't know. I don't really know.
DY: Okay. No problem. Um, could you please evaluate the importance of collaboration and communication in eLearning atmosphere from the social sciences point of view?
TJ: Sorry, in eLearning atmosphere?
DY: Um, the importance of collaboration adn communication in the eLearning atmosphere, right.
TJ: In the eLearning atmosphere.
DY: For social sciences point of view.
TJ: Yeah, yeah, yeah.
DY: Mm-hm.
(Silence)
DY:Or let me ask it this way, is there a difference between point of views of social sciences and technical sciences towards collaboration and communication on eLearning environments?
TJ: Ah, okay.
DY: Yes.
TJ: Oh, I see, yeah, still I have to think that's really hard question.
DY: Okay.
TJ: The problem is..., I have probably I have an opinion there but the thing is, you get stereotyped. With this question, um, I, I'm not so sure, if I'm not reproducing my own stereotypes if you ask. Because spontaneously I would say yes there is a lot of difference in the social sciences.
DY: Mm-hm.
TJ: There is a lot emphasis on communication on collaborating,

DY: Mm-hm.
TJ: ...and so on. Um, as...an end- an end in itself, you know? In the social sciences or at least in education,
DY: Mm-hm.
TJ: I would say collaboration is good.
DY: Yes.
TJ: And communication is good.
DY: Mm-hm.
TJ: And we probably will, I mean, there is research wide for them if there is an added value. But they tend to say it is good because, it's just good, you know, to have collaboration.
DY: Yes.
TJ: More or less if it's with self-evident. And, it is good to communicate because everbody feels at home, then. If you communicate a lot during our eLearning processes, everybody feels, you know, there is like, um, social relatedness, then,
DY: Mm-hm.
TJ: ...everybody thought he is at home. And, now reproducing my stereotype, I would say the social sciences would say 'Okay, we don't care about the communication and collaboration, if we need it we note it on eLearning but if we don't need it, we just skip it', you know.
DY: Mm-hm.
TJ: Then, we have individual work.
DY: Yeah.
TJ: I would say that it would be less ideology and more pragmatics, if you-if you put it like that you know. They would say like, okay if we, if it's really necessary to collaborate because one by alone can not construct this technical whatever,
DY: Mm-hm.
TJ: ...this gear for example, then we have to collaborate, then, we do it.
DY: Mm-hm.
TJ: Then, we have a virtual classroom for example, or video conferencing.
DY: Yes..
TJ: But if, um, it's also possible when everybody construct his part on his own and then, we send it together or we put it together and we skip all the communication and collaboration because it's just additional costs.
DY: Mm-hm.
TJ: And in the social sciences I would say, there' a tendency to, yeah, well, we have to talk to each other we have to communicate, it's important. That's more self-evident. But again I would say..., I'm citing my own stereotypes probably.
DY: Mm-hm. Okay.
TJ: And I'm not so sure if you ask a technician or guys from the technological part from technical science-sicences if he or she will see it in the same way I'm not sure.
DY: Mm-hm, okay. And, if a software or an electronic environment has to be created to enable eLearning how would it like, look like for social sciences?
TJ: ...Hm, with regard to what? Um...
DY: For example, let's think that as an electronic environment should be developed for social sciences only?
TJ:Okay. So, you mean which features it would have.
DY: Yes, of course.
TJ: ...which functionalities.
DY: Mm-hm.
TJ: Yeah, probably, I would say, um, lots of social networks, you know, means to communicate to create communities, to exchange...data to, um, for example,show yourself, have your profile, expose yourself to be like, um, yeah, to-to show your personality on the net, I would say. You know, it typically be a community platform, I mean at the moment, it typically, at the form of community platform, while you have our profile, you have your, um, you have your possibility to post something, to send private messages to your peers to create your network and so on. I mean, I have plenty of examples around, for example, if you have 'Ning' or 'Jammer', you know 'Jammer', yeah, for example, these would be typical platforms that would be used in social sciences context I would say.
DY: yes.
TJ: For example, at the university of St. Gallen, many institutes use Jammer for, yeah, for building their networks in the university.

TJ: So, this I would say and then again, citing my stereotypes for the technical sciences, I would say, probably, um, there wouldn't be so much emphasis on self-representation, not so much emphasis on your own profile. Perhaps, not so much emphasis on, um, on networking or communties but more emphasis on, being able to change huge amounts of data, um, lots of emphasis on security,
DY: Mm-hm.
TJ:...to have secure connections, to, um, you have the possibility to be anoynmous for example.
DY: Mm-hm.
TJ: Um..., yeah, perhaps to have advanced possibilities for, kind of simulation, or for example, to have the possibility to plug-in or to extend, um, the functionalities,
DY: Mm-hm.
TJ: ...to embrace, yeah, different functionalities on to yeah, something like that.
DY: Mm-hm. Okay. And, do you think that eLearning is more suitable to social sciences or technical sciences? Do you have and idea like that?
TJ: No.
DY: No. Okay.
TY: And, I would, I would just absolutely say that that's not, [inaudible segement], I wouldn't say that eLearning, such a generic and such a broad concept,
DY: Mm-hm.
TJ: ...that you couldn't say, it's more suitable to this or that.
DY: Mm-hm.
TJ: I mean eLearning is suitable for, or preferent forms of eLearning are suitable for any, any domain that forms of eLearning is suitable for every domain, for any subject or area or any content area, um, well.
DY: Yeah.
TJ: So, no, I would say absolutely no.
DY: Mm-hm. And, when you were conducting the same research study that I'm conducting now, what would you ask as a main question?
TJ: (Laugh), I'm not so sure if I already got exactly what you do researching.
DY: Mm-hm.
TJ: So-So what's your interest? Domain?
DY: For example, now I'm asking these questions to the experts, eLearning experts,
TJ: Yeah.
DY: ...and, in the second step, I will go to the lecturers that use eLearning applications in social sciences and technical sciences field. What would you ask to this lecturers group?
TJ: Yeah, okay.
DY: Or would you ask anything?(laughing)
TJ: Yeah, yeah, sure. But that's also a hard question. I have to think about it for a moment.
DY: Okay.
TJ: Well, first I would say..., I would ask them about their... idea or impression,
DY: Mm-hm.
TJ: ...abo-about their impression, not future ideas but about their impression on eLearning or eLearning technologies can provide for their subject area, for their, um, individual, or with respect to their subject area, or even for their teaching, I would ask them very concrete about their teaching because otherwise we porbably have no idea, what they think eLearning provide or can provide for their own teaching.
DY: Mm-hm.
TJ: I suppose that there would be differences,
DY: Mm-hm.
TJ: ...and, I suppose that you will see that the differences won't,
DY: Mm-hm.
TJ: ...there will be differences or there will be probably patterns concerning the subject area.
DY: Mm-hm.
TJ: Most probably there will be, there will be huge differences between the individual persons.
DY: Yes.
TJ: And, um, perhaps, also, between the individual institutions. That's for sure very interesting to see.
DY: Mm-hm.
TJ: Um, that would be the first thing, I would ask.
DY: Okay.
TJ: But then, I would ask another thing,

DY: Mm-hm (sharp laugh).
TJ: Yeah, um, and I would ask them about what they think is the weakest part in their teaching at the moment.
DY: Mm-hm.
TJ: So, what would they say, what is the actually worst thing about their teaching,
DY: Mm-hm.
TJ: ...what doesn't really work very well. And from that point on, you could ask them okay, this is the weakest point and if you have this impression about eLearning,
DY: Mm-hm.
TJ: ...could there be possibilities that eLearning technologies, could address these weak points.
DY: Mm-hm.
TJ: And, I-I would be interested personally, it's really interesting, if people from different disciplines can build a connection, then. If they say, 'Okay, we have weak points in our teaching and we have technologies that currently not used for teaching and learning',
DY: Mm-hm.
TJ: ...perhaps they have ideas then how they could use various technologies to address these weak points.
DY: Yes.
TJ: Because, in my experience normal people have a very preset information about eLearning.
DY: Mm-hm.
TJ: In quite often this is for example, um, web based or computer based trainning only and there was a okay, well, hm..., that's not so interesting or interesting only for very limited part. But if ask them what's the weak point and then, show them different technologies, ideas about how they could use.
DY: Mm-hm. Okay. Thank you. Is there anything you would like to add to the interview?
TJ: No, I don't. (laughing)
DY: How did the interview feel for you in general?
TJ: It was interesting and I mean, it was a bit, um, hard for me at times because I'm not into the technical sciences.
DY: Mm-hm.
TJ: That's a general problem, um, I would say in eLearning research.
DY: Yes.
TJ: Because many people, I mean there are people from the for example, at the TU Ilmenau, or I know people also from Aachen who are into technology,
DY: Mm-hm.
TJ: ...and to eLearning research, also in technological domains but the problem is that people doing research from an educational point of view, very often limit their research and also, their practice to the social sciences.
DY: Mm-hm.
TJ: Because, you know, the style of the, the thinking style of the disciplinary similarity is there.
DY: Yes, yes.
TJ: And only very few people from education with an education background go to technical sciences,
DY: Mm-hm.
TJ: ...or to medicine,
DY: Mm-hm.
TJ: ...and work there. Because it's very hard, so, there is research going on also in technical sciences, medicine and so on,
DY: Mm-hm.
TJ: ...but the problem is, it's not, it's quite often it is not with an educational background.
DY: Uh-huh.
TJ: So, they often miss the educational background, and become a bit technocratic.
DY: Yes.
TJ: There's the people in education are a bit lazy and limit themselves to the social sciences.
DY: Yes.
TJ: And the problem is then, the concepts developed in the social sciences, for the social sciences don't fit the technical sciences.
DY: Yes.
TJ: And, the concepts developed in the technical sciences often stay limited to kind of technocratic aspects.
DY:Yes.

TJ: So, I would say, there's a gap and we are sometimes a bit arrogant about that.
DY: Mm-hm.
TJ: We try to we go to technical people we try to give missionaries and come with our concepts but then, we don't see or we just ignore that our concepts may not fit them so well.
DY: Yes, may be my thesis will show some perspectives on this area.
TJ: Ah, yeah (laughing).
DY: Yeah. (laughing)
TJ: But, I would say that that's really a problem and it also showed up in the interview because it is also a bit of an arrogant that I got the impression that the technical sciences and so and so.
DY: Mm-hm.
TJ: And so, we have to be self-critical about that. That was a bit hard about the interview about technical sciences [inaudible segment].
DY: Yes, I would say that for the other experts it was also hard to state opinions about the technical sciences because, they say okay my background is not on the technical sciences so that I – I don't want to say anything about them and stereotype them like you do. There was a, one Prof. Isa Jahnke may be you know her, she is a social scientist but she also worked in technical sciences area and did workshops with them, she answers a lot of questions with the technical sciences but the other experts were like you, actually. But, it's a normal situation because when you don't have any experience on technical sciences with regards to eLearning, you can not answer.
TJ: Yeah. And I'm, I'm really looking forward to your results, actually.
DY: Okay, I will send a short summary of the whole Phd thesis when I'm finished. (laughing)
TJ: Very cool, because I'm really interested in what the others said.
DY: Mm-hm, okay.
(out of topic)
END OF TAPE 1.
END OF THE INTERVIEW.

Participant ID: Prof. Dr. Lars Knipping (LK)
Interview Name: eLearning Experts Interview
Short Biography: University Professor in New Media in Mathematics and Natural Sciences & Head of Centre for Multimedia in Education and Research (MuLF) at Berlin Institute of Technology
Site/Location: Skype VoIP
Date of Interview: 12/06/2012
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (1 TAPES TOTAL)
(Out of topic)

DY: Do you agree with the record of the interview?
LK: Yeah, that's fine.
DY: Okay...um, my first question is about; do you think that there is a difference between the eLearning practices of social sciences and engineering sciences?
LK: Um...I think so, yes (short laugh).
DY: Um...in what facts for example?
LK: Um, well, just because teaching is different between these two.
DY: Mm-hm.
LK: And, um, in the engineering sciences and the natural sciences...we have much more delivery of facts.
DY: Yes.
LK: And, in social sciences we have much more discussion based, um, learning.
DY: Mm-hm.
LK: Although, of course, to bother, this is flowing in between so, we have also discussions and engineering, facts in social sciences, of course, well, the focus is different.
DY: The focus is different (noting). Okay. What is the most important benefit that eLearning brings to engineering sciences or the, as general technical sciences?
LK: Um, okay. I have to think a bit.
DY: Yeah.
LK: (laughing).
DY: (laughing).
LK: Um, yeah..., so, I think um...well..., basically, at least at the moment in engineering, we have a lot of well, just content delivery,
DY: Mm-hm.
LK:...and, yeah, it provides people with um, with content they can rework on. So, look have again, so look at it. Of course, you can also have it offline like print-outs and stuff like that but makes an easy access for them.
DY: Yes.
LK: Yeah.
DY: And what is the most important challenge that eLearning brings to technical sciences? Any opinions?
LK: It is the didactics, basically. Not only...
DY: Didactics?
LK: Yeah.
DY: Yeah. Okay.
LK: Yes, so we don't have a really developed didact-didactics for, yeah, for online learning, yet.
DY: Mm-hm. And what is the most important benefit that eLearning brings to social sciences in your opinion?
LK: (laughing). That's difficult to say because (laughing),
DY: Yeah.
LK: I'm amateur in social sciences (laughing).
DY: Uh-huh. Okay.
LK: Um...
DY: But any opinion or so...
LK: It depend-depends, depends very much....sorry about thes-the noise in the background, we have some building...
DY: Oh, okay no problem.

LK: We have building works here. So, um, so, um, it depends perhaps a little bit on what kind of social sciences, as an amateur concept, perhaps, also, well, if you have a, um, if you focusing on um...on some international comparisons on social sciences, of course, you can have much more easier access, so, communication worldwide.
DY: Mm-hm.
LK: But, um, well somebody who, well, um, who um, doesn't care about these topics might disagree (short laugh).
DY: Yeah (short laugh). Okay, um, now I would like to ask the challenge that eLearning brings to social sciences?
LK: Social sciences...
DY: What can be a challenge or let me ask it this way.
LK: Um...well, general, it is not only for social sciences but well, it-it stronger in social sciences, so, um, I think um, the...um, with all these communication um, heavy use of eLearning, um, of course communication is different online, you don't have direct contact, you don't have so much um, mimics and gestures,
DY: Mm-hm.
LK: And, stuff like that and other forms of communication.
DY: Yes. Okay.
LK: Yeah.
DY: What kind of eLearning tools as instructional media, for example, do you think social sciences prefer to use?
LK: Um...can you repeat the whole question, I just...
DY: What kind of eLearning tools as instructional media, for example, what kind of tools, in an eLearning platform, do the social sciences prefer to use?
LK: Well, at least at our university, they use a lot of um, forums, a little bit of chat sometimes,
DY: Yeah.
LK:...um, and wiki's so collaborative, um, yeah, working on material.
DY: Mm-hm. And the technical sciences?
LK: They just, most of them, are heavy on just yeah, flowing in content based (laughing),
DY: Yeah.
LK: Like pdf's, um, um, some of the...those who put more work on it, also use some visualizations, perhaps, but,
DY: Mm-hm.
LK:...this is the queen (laughing)
DY: (laughing). Okay. Okay, then, you think like for example, the technical sciences prefer to use eLearning more as a document sharing platform and social sciences are a bit more collaboratively in this working space.
LK: Yeah. However, um, there is some use of collaborative like forums and so on in the technical but not so much um, um, driven by the...um, teachers but just um, as in between the students.
DY: Uh-huh. Yeah, you mean that students like prefer to use forums in their studies.
LK: So, so, teachers have provide forums and,
DY: Mm-hm.
LK: ...don-you often don't have a look afterwards in it but so, students still can like discuss um, the exercises and stuff like that in a forum.
DY: Uh-huh, yeah. Okay, um, you already mentioned that technical sciences are a bit um, weak in the didactical concepts but I would like to ask what kind of eLearning scenarios do you think technical sciences prefer to use?
LK: Um, (short laugh). So, far over they use (laughing),
DY: (laughing).
LK: ...they just pre-prefer um, well offline teaching and providing material,
DY: Mm-hm.
LK...on the platform.
DY: You mean that there is no-no scenarios like problem solving, project-based learning, etc... and so on, yeah?
LK: Rarely, um, problem based learning sometimes, projects and this is not online learning then.
DY: Uh-huh. Okay...
LK: From what,
DY:...yeah.
LK: ...from what I, from what this, yeah, well, um, I see on a daily basis at least (laughing).

DY: Yeah (laughing). And in comparison with social sciences do you see that do social sciences use what kind of um, sorry, what kind of eLearning scenarios social sciences use on eLearning platforms? Do you have an idea?
LK: Social sciences. Yeah, um, well, um, at least in our university is um, there is a huge group which doesn't use any (laughing) online learning,
DY: (laughing)
LK: ...and, but there are also some groups that try to try out everything like we have a group which is very active here.
DY: Mm-hm.
LK: Well, using something like, yeah, like, yeah, let's build a wiki together on this or um, let's do some online tests,
DY: Mm-hm.
LK:...for pre-learning and stuff like this.
DY: Mm-hm.
LK: Um...yeah these are the...and well, meet for online chats, and have it discussed in the forums so, but they don't have really deep into, yeah um, deep look at it.
DY: Mm-hm.
LK: Because, well, it's a huge university but they know there are some groups who are very active on that.
DY: Yeah. Okay. Um. What do you think about the social forms of the students such as individual work or group work on eLearning environments, with regards to technical sciences? Do they prefer more individual work or group work when they are using eLearning but it's not also fitting now (laughing) to their concept of eLearning.
LK: Oh...
DY: Yeah.
LK: Well, I think about it. Um, in general....so, um, we have on very few pure eLearning,
DY: Mm-hm.
LK: ...um, approaches here, people like to be supported online by um, for group work like, mm, we have built also some platforms here and there is a lot of requests on things like well we want to have tools online for finding groups who are working together,
DY: Uh-huh.
LK: ...and, sharing the work. But I think it's-it's a blended approach. They still want to meet and discuss in person,
DY: Mm-hm.
LK:...but also be able to well they say okay, I work on this and send you that this evening.
DY: Uh-huh.
LK: Um, and have all people, yeah, in the workgroup have a look at it also well support for just finding work groups in our huge courses.
DY: Yeah. What do you...you mean that um, the lecturers um, don't um, for example, state that they should work in groups or they should work individually?
LK: Well, they, they, we have lecturers, um, a lot of lecturers which say they have to do their exercises in groups or individually.
DY: Uh-huh. Yeah.
LK: Um...but this is independent from online or offline..
DY: Uh-huh. Online or offline (noting), yeah. And is it valid for the social sciences, too?
(Murmurs)
LK: I don't know but I guess, they, they have more individual work but I don't really know. I know in the engineering it's um, it's an organization thing so, most of the teacher would prefer to have individual work,
DY: Mm-hm.
LK: ...or at least for most of the courses, of course they should learn to work together but well we don't have really resources to um, to , um, work on the exercises turned in for all of the people.
DY: Yeah.
LK: Like for example, half a year ago, I teach mathematics for engineers,
DY: Mm-hm.
LK: ...and there was one of four lecturers to teach it because no lecture room was big enough to organize these. We had three thousand six hundred forty-six,
DY: Wow.
LK: ...people visiting this lecture (laughing).

DY: Oh-oh-oh!
LK: (laughing).
DY: That's a big number (laughing).
LK: Yes, so, it's all of the engineers in the first term, basically.
DY: Yeah.
LK: And the, and so, um, we have well, I think, hundred fifty or also, teaching assist-student teaching assistants but still, you can't have all the teaching assistants um, have um, yeah, um, um, look at, looking at the exercises, yeah, for each of the um, of the students being in, so they turned the size in groups of two or three people.
DY: Yeah. Okay. May I skip to the next question?
LK: Yeah.
DY: Yeah. Could you please evaluate the importance of collaboration and communication in an eLearning atmosphere from social sciences point of view, and I want that um, later on from technical sciences point of view?
LK: Okay. Oh. Um... well, it's easy communication and um, collaboration, this is essential I think for, especially for social sciences, so,
DY: Mm-hm.
LK: ...not only in an online um, good so, um, there is um, constructive learning is always important but well, in social sciences, well, it's a core, basically,
DY: Mm-hm.
LK:...to discuss things.
DY: Yeah.
LK: So, obviously (laughing).
DY: Yeah (short laugh), okay.
LK: Okay, it is also important in online learning.
DY: Yeah. And from technical sciences point of view, how important is communication and collaboration in an eLearning atmosphere from the technical sciences point of view?
LK: I think, it is important, um, because, um, it helps people in understanding,
DY: Mm-hm.
LK...for, there are some people who can still learn on just on content.
DY: Mm-hm.
LK: [inaudible segment], but in general, for good teaching, um, it is important but um, we, um, I think um, is it working right now well, rarely, because the um, few of teachers have the didactics for it where it works is on a peer-to-peer basis.
DY: Uh-huh.
LK: Because people, help each other if there are, if there is a right environment for that.
DY: Yeah. I asked this question because there is an overall opinion like technical sciences don't like to communicate and collaborate very much when they are doing teaching or when they are researching, that's why I asked this question, if there is a difference in the eLearning atmosphere, too? And...
LK: Yeah.
DY: Yeah.
LK: Yeah. I think it doesn't, it doesn't really fit in the working flow of the teachers.
DY: Mm-hm (short sharp laugh).
LK: But, (laughing), um, um, um, well but it is also the difference between like in-in technical sciences, we often hired the lecture format is in somehow perhaps not optimal but very efficient way,
DY: Mm-hm.
LK:...to teach.
DY: Mm-hm.
LK: And, well the typical form in the social sciences is seminar in small groups, discussing.
DY: Yeah.
LK: to each other.
DY: Mm-hm. Okay, if a software or an electronic environment, a new, totally new environment have to be created to enable eLearning, how would it look like for technical sciences?
LK: (laughing).
DY: Do you have an idea? (laughing)
LK: (laughing), well, I know how existing (laughing), um, um softwares, um, yeah, are but well, it's still an open question, how they should do look (laughing).
DY: Yes (laughing), problematic question but...
LK: (laughing). I don't really have an answer on it.

DY: Yeah. Then, I can also skip the social sciences part (laughing).
LK: [inaudible segment]. So, I can still say well...
DY: Okay, no problems.
LK: Perhaps, um, one of the more obvious draw backs, current,
DY: Mm-hm.
LK: Um, current big eLearning platforms is they are still a few years behind, just in the look and feel.
DY: Uh-huh, yeah.
LK: So, um, things are more rather static and um, ah, not that fluent like um, web 2.0, web 3.0 and AJAX technologies could enable things that they are, they are more like um, if I have a comparison, with map services, if you look at um, map services five years ago,
DY: Mm-hm.
LK:...um, you have a map then you wanted to go, um, into see a little bit more east, you have to click a button, things reload quickly.
DY: Mm-hm.
LK: And, if you look at Google Maps. It was one of a third application to introduce AJAX technologies, you just click in the map and drag it. And you don't have to reload the parts which have already shown.
DY: Uh-huh. Yeah.
LK: And things at modern web portals feel like that you can reload the things and don't wait long,
DY: Mm-hm.
LK: (laughing), it is that um, there is a lot of things running in the browser and if you look at current implementation of at least Moodle and I think it is same with blackboard stuff like that.
DY: Uh-huh.
LK: Um, um, it is the old way,
DY: Yeah.
LK: ...so, and um, so there could be a lot of um, here improvement in the user-experience and making things more fun to work with,
DY: Mm-hm.
LK: ...for the students.
DY: Then, can you see an advantage of web 2.0 or web 2.0 tools here... with regards in comparison to Moodle learning management systems or other one?
LK: Yeah, so, well I told you first feeling to work with it,
DY: Mm-hm.
LK:...to have fun with it and also to motivate more the people to yeah, to add um, user-generated content, micro content, no-not writing a big article,
DY: Mm-hm.
LK: But just a small comment here, and a small comment there and share the knowledge.
DY: Yeah.
LK: Yeah. I think the, there could be a lot of development in that direction.
DY: Yes. Okay. Um, do you think that eLearning is more suitable to social sciences rather than technical sciences or the other way around?
LK: No, I think, um, the teaching cultures are quite different and you have to, yeah, to um, um, yeah, to recognize this and support this.
DY: Mm-hm.
LK: But, in general, both can profit from it.
DY: Yeah, okay. Um, and my last question when you were conducting the same research study that I'm conducting now, what would you want to ask to the lecturers side? Do you have a specific question to them? Or is there anything comes to your mind what you want to ask to lecturers, why is it like this or? Why don't we do this, etc...?
LK: No, I don't have a specific question. I wanted to ask you in the end the,
DY: Mm-hm.
LK: ...if I can see, see um, the end result of your work.
DY: Yeah, of course, I will send you, I will send all the interview participants, a short summary of my PhD thesis, as soon as I'm finished. And, it would be actually at the end of July, I think.
LK: Oh, toll! Great!
DY: Yeah, yeah.
LK: (laughing).
DY: Is there anything you would like to add to this interview or any question that you want to ask to me?
DY: Prof. Knipping?

(internet connection disabled)
(internet connection enabled)
LK: Okay, perhaps, I should just add,
DY: Yeah.
LK: ...what we need is more stability and (laughing),
DY: (laughing).
LK: (laughing)...the use of online communication tools. If even Skype did so much problems (laughing).
DY: (laughing). Yeah. Let's see in few years. (laughing). I hope at least, yeah. So, is there anything that you would like to add to this interview?
LK: No,
DY: Or, how did the interview feel for you?
LK: It's fine, nice.
DY: Okay.
(overlapping speech)
LK: I thank you for your patience, too (laughing).
DY: Yeah (laughing). Thank you. Um, thank you very much for accepting this interview and I get valuable responses from you and as soon as I, you know, I'm finished, I will send a short summary to you that you can also read it.
(out of topic)
END OF TAPE 1 (1 TAPE TOTAL)
END OF THE INTERVIEW.

Participant ID: Dr. Phil. Marc Krüger (MK)
Interview Name: eLearning expert interviews
Short Biography: University instructor working in the field of Networks of Communication, Tracking-based services and systems, transmission technology at University of Hannover.
Site/Location: Skype VoIP
Date of Interview: 25/05/2012
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

(Out of topic)
START OF TAPE 1 (1 TAPE TOTAL)

DY: Do you agree with the record of the interview?
MK: Um, yes, no problem.
DY: Okay. Thank you. Um, my first question is about do you think that there is a difference between the eLearning practices of technical sciences and social sciences?
MK: Um, uh, yes, of course. Normally, the technical or engineering sciences, um, they have, um, normally, they have a different, um, lecture, more important is lecture of the lecture hall or the, and social sciences is just more important, seminar, and that's more like speaking together and discuss the topics and in engineering sciences or the technical sciences, there is more, that they give knowledge to the people, so it's, um, the big difference. And, of course, in technical sciences, you have something like labs and that you don't have in social sciences.
DY: Mm-hm. Um..., what is the most important benefit that eLearning bring to technical sciences?
MK: ...the most important, oh! I'm [inaudible segment], for me the important that there are so many possibilities to construct a lecture with um, it depend on the needs, so, what is important, the most important.
DY:Okay.
MK: Yeah. I would say, actually, actually, it's very important for them to record the lecture.
DY: ...record the lecture.
MK: This is very, the people like it to, the teacher like it very much and they come here and ask for this service and yeah...and the student like it very much because, so, they can have a look again um, to the-to the lecture and when they don't [inaudible segment], special part of the lecture, they can repeat it and um, make annotations for themselves and so on.
DY: Mm-hm. And what is the most important challenge that eLearning brings-brings to technical sciences?
MK: Mm, um...[short break]. Die Herausforderung, oh, that is a general challenge to find right methology and to find medias for the learning goal. And, um, a big challenge of course in a practice, all the teachers, they are not experts so you have to explain them the possibilities they have and they have to decide what is the best for their learning goal for their teaching.
DY: Mm-hm.
MK: I would say this is, this is a big challenge. This is a big challenge for us as a expert, I would say.
DY: Yes. I would like to ask the same question for the social sciences, what is the most important benefit that eLearning brings to social sciences, in your opinion?
MK: Oh yeah, I-I think there are good benefit for social sciences as they can collaborate together or they can work together at one document, write, um, write an abstract or write a paper or whatever and...do this with google docs or with wikipedia or whatever.
DY: Mm-hm.
MK: So, this is very good for social sciences. And that are fond of cooperation and the, and the, um..., during the learning, they never had before.
DY: Mm-hm.
MK: Because before they have to write, and change the papers and so on. This is a very benefit, of course. Mm.
DY: Mm-hm. And, what is the most important challenge that eLearning brings to social sciences?
MK: Ah yes, of course. The challenge on the other side is to arrange learning scenario,
DY: Mm-hm.
MK: And to arrange um, the setting of the um..., of the lecture.
DY: Mm-hm.

MK: And, um, well, the students have to learn to work with this media and to interact together with this media. That mean something like to competence how to use the media. This is the big challenge. Yeah.
DY: Mm-hm. What kind of eLearning tools as instructional media do you think social sciences prefer to use?
MK: Once again the question. For what kind of...?
DY: ...eLearning tools as instructional media, um, do you think social sciences prefer to use?
MK: Once again the question. I don't understand the last sentence. So, the last part of the sentence.
DY: Okay. What kind of eLearning tools do you think social sciences prefer to use?
MK: Ah! Prefer?
DY: Yes. Yeah (short sharp laugh).
MK: Sor-sorry, this is, the connection maybe, do you have different or do you have a microfon?
DY: No, actually. But I can skip to another laptop if you want...
MK: But, um, no, yeah...no I umderstood the question.
DY: Okay.
MK: So, social science, um..., what they use at most, more or less, yes? This is for the question?
DY: Yes, yes, of course...
MK: Um, I need to think because...
DY: Okay, okay, take your time...
MK: Anyway, yes, I think, I, so in social sciences, here, in our university they often ask about the wikipedia. This is plugged in our learning management system, this is what they actually like it most.
DY: Mm-hm.
MK: For active and cooperative learning.
DY: Mm-hm.
MK: Yeah.
DY: And for technical sciences?
MK: Yeah, it seems like the lecture recoding, yeah (short sharp laugh)?
DY: ...recording, okay.
[short break]
DY: And what kind of...?
MK: And, yeah, additionally,
DY: Sorry...
MK: And, yeah, and additionally, it is the [inaudible segment], it is the assessment part, yeah?
DY: Mm-hm.
MK:...where they can um, produce more test, um..., with multiple choice question, this is very favorite as well.
DY: Uh-huh.
MK: They like it to train, they like it very much to train, special topics, for example, when they have to learn some special words or something like that.
DY: Mm-hm. Um, what kind or eLearning scenarios, do you think social sciences prefer to use on eLearning environments?
MK: For..., I have one general question about our interview. Do you focus on the lecture in a plain university or you focus more on distant learning?
DY: Actually, I'm focusing on both, the blended learning aspect and the distance educational aspect. Depending on the experts own experiences, actually.
MK:Okay, because, okay, because the most job we are doing is to support the teacher and the students here in our university,
DY: Yeah.
MK: ...in a presence lecture.
DY: Yes.
MK: Okay, but in that case you focus more on blended learning or distant learning, it-it would have different response.
DY: Actually, from the experts that I interview, we already focused on blended learning aspect morely, because distance education is a bisschen, little bit, um...not in trendy nowadays.
MK: Oh, but, yeah. For sure, my university is not such interesting because the most students come to the city and works there, of course.
DY: Mm-hm.
MK: Okay, so that blended learning, so, whoa, this is very different, very different, there are, some they show videos in social sciences,

DY: Mm-hm.
MK: And, so the videos from, for example, from teaching at the school and then, the students have to analyse and discuss about this teaching,
DY: Mm-hm.
MK:...at school. Um, the next could be they have to write a, um..., article together, or a text together and they will do it on the wikipedia or on google docs or whatever.
DY: Mm-hm.
MK: And, yeah, it could be so different, there is one lecture, they have videos and they have to ask, annotate the video which is a visual tool and they have to discuss the video by making annotations at the video.
DY: Mm-hm.
MK: So, I would say in this social sciences not touch general, you have to look more to the different needs.
DY: ...to the different needs.
MK: And..in cooperation to the technical sciences, it is more similar, you have more this lecture recording, you have more this, [inaudible segment] or something like that.
DY: Mm-hm.
MK: um..., lecture responses and so on.
DY: Mm-hm. Um, you mean that technical sciences also prefer to use eLearning scenarios such as lecture recordings but is it like more project based learning or with, task based learning, what kind of eLearning scenarios do technical sciences prefer to use on eLearning environment?
MK: I'm, woah, I think about them, we have to, okay, when we have a look to the blended learning courses, then we see, we see the part of lecture recording, watching the lecture at home and coming to the-to the university and um, and discuss about the lecture and do the exercise,
DY: Mm-hm.
MK: ...so that we make the change. This is like the Khan University use for school and so on. Um..., and just blended that could be one typical blended learning arrangement and the other thing is this more project-orientated learning, this project learning.
DY: Mm-hmm.
MK: But in this case it did not touch a blended learning like that using the tools t o social, technical questions,
DY: Mm-hm.
MK: But they are doing the same like they do for the normal lecture. This more working than learning, that's...so, yeah.
DY: Mm-hm. Okay. And, what do you think about the social forms of students such as individual work or team work on eLearning environments with regards to social sciences first?
MK: Once again the question please.
DY: Mm. What do you think about the social forms of students, um, such as individual work or group work on eLearning environments with regards to social sciences?
MK: Okay, of the..., if they use the possibility of this they have to work individually?
DY: Yes. Do they prefer more individual work in their lectures on eLearning or do they prefer more groupwork?
MK: Uh-huh! Whoa! Oh!I would say generally but it is the same like the traditional lecture, they prefer the group work because they can, they can share the task, they can, they don't have to do so much.
DY: And for technical sciences, is it the same?
MK:Near-nearly,
DY: Yeah.
MK: Nearly the same, I know because, I'm teaching in both parts (short sharp laugh).
DY: Okay.
MK: I would say there is no big difference, I can't see a difference.
DY: Okay.
MK: Of course, you have all, okay, in every sciences, you have individual students, they like to work more still alone,
DY: Mm-hm.
MK:...and organize quite some tasks but the meist, the most like to do group work.
DY: Okay. Um...this is the same question almost but could you please evaluate the importance of collaboration and communication in eLearning atmosphere from social sciences point of view?
MK: Mm-hm. The same but of the question. There are sometimes, some words missing, I don't know why?

DY: Oh! Okay, may I again (laughing)?
MK: Yeah.
DY: Could you please evaluate the importance of collaboration and communication in eLearning atmosphere from the social sciences point of view? Could you hear?
MK: Yeah, yeah, yeah. Ah, yeah, I understand. I don't know what do you mean with this social, you said atmosphere.
DY: Let me change my question, um, do you think there is a difference in understanding collaboration and communication in eLearning atmosphere, um, between the social sciences and technical sciences? Do you think that technical sciences give more importance on communication and collaboration as social sciences or the other way around?
MK: Hm, hm, hm, hm. I understand the question but I...
DY: If you want you can also skip the question.
MK: Yeah. (silence). I don't....okay in social sciences you have different um, um, you have more cooperation or you have more discussion about a topic. Um, no... I don't think there is a different, big difference, no.
DY: Hm.
MK: I think this...the students use possibility if they have to need to discuss about a topic or if they have questions or whatever. I would say it is more or less the same atmosphere.
DY: Mm-hm. Okay.
MK: I, I'm not sure (laughing).
DY: Okay.
MK: So.
DY: Then, I'm skipping to the next question, if a software or an electronic environment have to be created just to enable eLearning, how would it look like for social sciences and for technical sciences?
MK: Um..., mm-mm-hm. Okay, I would say there are many basic needs so may be nearly 80% is the same, yeah? But, but, I can say I have money, I don't have to think about the money, there is so many money that I can do every project and give them the best tools what they need I would say, in this social sciences part, you need more this cooperative, um, oh, learning, you know, cooperative tools, for example, like mind manager, or content mapping or audio/video conference, the whiteboard and so on in this part. Um, one moment please! (telephone is ringing).
-out of topic-
MK: Um, if you would do this, I would take more, more something like internet labs, and so on.
DY: Mm-hm. Internet labs... Do you think that eLearning is more suitable to social sciences or technical sciences? Do you have an idea like this?
MK: Um, one moment.
DY: Problem with internet connection.
MK: Problem with internet connection.
DY: Yes.
MK: Okay, once again.
DY: Okay, can you hear me now?
MK: Yeah...I hear you.
DY: Um, did I quit your sentence or?
MK: Sorry?
DY: Did I break your sentence? Did you tell something before because the internet connection was not good?
MK: Ah, okay. I, um, um, you [inaudible segment] what I said for social sciences, yeah?
DY: Yes. Cooperative tools, mind manager something like that and for technical sciences you metioned internet labs, I think.
MK: Yeah.
DY: Yeah.
MK: Yeah. It's all, yeah I would say this internet labs would be very interesting for us and the students because they have more possibility to visit their lab to practice the lab and so on. And this is yeah, more or less, how do you say in German, [inaudible segment] (laughing), so this is the gap, no not the gap, this is the part that we don't have enough ressources, so, in this case we would have, in internet much more possibilities to use the labs or the students can virtually use labs.
DY: Mm-hm. So your idea is when for example, there is money ressources there can be um, more activities and applications can be bought,
MK: Yeah.
DY:...and more successful activities can be realized.

MK: That-that's true.
DY: Um, do you think that eLearning is more suitable to technical science or social sciences, do you have an idea like this?
MK: (Silence), no I don't think, it is more or less suitable..., um, one moment...
DY: Okay.
MK: So, it..., I, you mean, you use more eLearning for social sciences for technical sciences or so..?
DY: Yeah, for example, do you have an idea like eLearning is, eLearning is actually more suitable to social sciences rather than technical sciencces or other way around?
MK: I don't know, I-I would, I would say more or less the same but I'm not really sure.
DY: Okay.
MK: I don't have count it. So, it's...
DY:Okay. And when you were conducting the same research study that I'm conducting now, what would you ask as a main question to the lecturers part?
MK: Hm, what I will...
DY: What would you be interested to ask?
MK: Once again, there are some words missing again.
DY: Yeah, as I explained before, I'm doing this interviews in two fold. And, now I'm going to ask lecturers about their experiences, eLearning experiences , when you were conducting the same research study that I'm conducting now. What would you want to ask to them?
MK: Would I ask to lecturers? (Somebody entered the room).
-out of topic-
MK: Sorry.
DY: Okay.
MK: What is the question, my question for the teachers?
DY: Yeah.
MK: I always see them and I ask them what I like to know.
DY: Ah, yeah.
MK: But, um, anyway...
DY: Is there a specific question that you always asking?
MK: Yeah, yeah. I think as an eLearning expert is always intersting is um..., yeah, what we need to do? How we can support you?
DY: Uh-huh.
MK: Um, that your practice support the policies of e-lernen. Well, that's the qustion yeah. Or how we can support, yeah.
DY: So, it is the end of the interview actually. Um, is there anything that you would like to add this interview? Or is there any statement that you want to use?
MK: No, thank you. Um, I don't have any additional comments.
DY: Okay, thank you very much for sparing time to me,
MK: Mm-hm.
DY: As soon as, I will be finished with this theses I will send a short summary to you about the theses and the results.
MK: Oh, yeah. That's fine, thank you.
DY: Thank you very much and have a nice day!
MK: Yes, you, too. Ciao.
DY: Bye bye.
END OF TAPE 1 (1 TAPE TOTAL)
END OF THE INTERVIEW.

Participant ID: Prof. Dr. Thomas Köhler (TK)
Interview Name: eLearning expert interviews
Short Biography: University Professor working in the field of Berufspädagogik **(Vocational Education)**
Site/Location: Skype VoIP
Date of Interview: 14/09/2011
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (1 TAPE TOTAL)

TK: Hello!
DY: Good Afternoon, Prof. Köhler? How are you?
TK: Good Afternoon, well, I'm fine thank you.
DY: Okay, shall I begin, the, um, first with my interview?
TK: Um, could you say it again, I couldn't understand that.
DY: Um, shall I begin with the interview?
TK: Yes, yes, please you may begin.
DY: Okay, the maximum duration of the interview will be, um, 30-45 minutes but it...it's depending on the flow of the interview, again. Do you agree with the record of the interview?
TK: Okay, I don't mind.
DY: Okay, thank you. Um, my first question is about do you think that there is a difference between the eLearning practices of technical sciences and social sciences?
TK: That's a nice question, and I think there might be some difference but the difference is not so much related to the, um, specific didactic concept, um, perhaps, technical teachers and technical subjects has. It's more related to some kind of, um, media competence, in understanding of media technologies, um, professors and/or teachers or lecturers in the technical subjects, um, may have.
DY: Mm-hm, um, what is the most important benefit that eLearning brings to technical sciences in your opinion?
TK: Well, um, for the technical sciences, it's of course, um, um, it is different things. Um, one is just to, um, relate education to, um, more independent learning and teaching activities and the second point is to keep up with the technological or media technological developments and changes.
DY: Mm-hm, and, what is the most important challenge for the technical sciences that eLearning brings?
TK: Um, when I talk to my colleagues, here, in Dresden University of Technology, I can see that also, um, also professor, um, in technical discipline is not really aware of having, um, the internet based technologies used in the sense of a web 2.0, also, um, tool. So, fo-for them is the challenge to-to reflect upon a new type of social technology.
DY: Mm-hm, what is the most important benefit that eLearning brings to social sciences, other way around?
TK: For social sciences, it is a very nice tool, um, that provides new methodological insights, for example, if you like to do a survey, you can do it online, if you like to do an interview, you don't have to record, um, interviews as we do it now, you can- you have a digital file immediately. Um, just up to now, it was rather difficult, there was transcript and there was a difficult to reco-record a signal and then, you ha- had to transfer the, um, the, um, those-those other facts into a-a digital, converted into a piece of software, so it was rather difficult and now you can easy access even experimental or almost experimental like situations in real field,
DY: Mm-hm.
TK: ...of research.
DY: Thank you. What is the most important challenge that eLearning brings to social sciences? Or what can be a challenge for social sciences?
TK: Um, well, for the social sciences, it is still a tricky issue to-to handle technology so, I would say...most of the younger colleagues are quite curious about technology but still, some-some hesitation about technology, they are not only older generation and just to give an example, um, in Dresden we did in 2008, the, um, German wide conference on education,
DY: Mm-hm.
TK:... and it was attended by 2000, um, um, scientist from the whole Germany. And, um, it was for the first time, that this conference used, um, an online paper submission system.
DY: Mm-hm.

TK: 2008! Unbelievable.
DY: Yes.
TK: If you compare to other disciplines, you see, um, how that this, um, technology is still seems to be a challenge by itself of many of the senior researchers.
DY: Yes. Okay, what kind of eLearning tools as instructional media do you think social sciences prefer to use?
DY: May I repeat?
TK: Yes, it's, it's, well, I would say some do not prefer to use instructional media at all. So, instructional technology, instructional media is something, um, which is, um, which is not liked by everyone, especially in the academic educational sector, um, social scientists prefer to be more, more free of-of any kind of defined instructional methodology.
DY: Hm. And what kind of eLearning tools or instructional technology, do you think that technical sciences prefer to use? Or, is there a preference by technical sciences?
TK: Yes. I would say yes, in the technical sciences, there is quite some interest in simulations and if you, I see engineers here in Dresden. I can see that they like to have a model's pictures and simulations of the technical mechanical or also theoretical, um, um, idea-ideas and concepts they teach.
DY: Yes. Um, what kind of eLearning scenarios do you think that social sciences prefer to use on eLearning platforms?
TK: One eLearning scenario that is very interesting is to have a, a, well, community oriented, a group or team oriented, um, online collaboration that means that you can have, um, um, working groups or small groups of, um, student, um, learners with the peer to peer collaboration, this is a nice try for the social sciences because it-it's highly, um, depending on communication, however, it also an application where, um, students need to have a-a good motivation and that is-is sometimes not really easy to find.
DY: What kind of eLearning scenarios do you think that technical sciences prefer to use? Is it the same with the social sciences or do you see any differences between them?
TK: If I ask my colleagues in the technical sciences, they will say no it's, yes it's different. And, I-I would say, well, the technical sciences are not so much interested in communication and social exchange, they are more interested in experimenting and accessing labs and doing joint, um, um, um, lab based activity, so, this might be more, um..., more in the focus of the technical sciences?
DY: Yes, and what do you think about the social forms of students such as individual work or team work with regards to social sciences, as you already answered but I'm asking it again.
TK: Hm, yes, okay, so, we-we just, we are just about completing a-a two-year, two year old project, research project, with collect, um, um, experiences, um, students made, um, in-in-in such a manner. For example, we found evidence that students often independently organize web 2.0 like activities for example, there are students in the, our informatics department. We have setup a forum and a some...online space for, um, independent exchange, there is no teacher around. So, they just talk to each other independently and they talk about exams, they talk about next lecture, next week and so, for them, the virtual, um, the-the-the virtual community is a nice and for independent self-study-learning activity and the social community of the same course or the same subject.
DY: Yes, you mean that the social sciences students, for example, want to have, um, independent organizations by themselves, in themselves, yeah.
TK: Yes, yes, um, exactly.
DY. Okay. How about technical sciences, what do you think about the social forms of students in technical sciences, on eLearning environments?
TK: I would say...
DY: No difference?
TK: No, no difference, in that case, I would say, it's-it's the same, it can be the same.
DY: Could you please evaluate the importance of collaboration and communication in eLearning atmosphere from the social sciences point of view?
TK: Hm...Um, I think that students in social sciences, and, um, including economy and business studies, are more aware of the-the communicative needs. And, the engineering sciences people tend to be more quite and-and, um, not so much communicative. On the other hand, we know from research about computer mediated communication and that CMC is especially helpful for those, um, who are a bit more shy and, um, late back concerning the exchange with others. So, but for social sciences, I think the tool that they are, um, adopt, um, um, by intention and for the technical sciences, it might be more some effect, um, helpful to overcome some difficulties.

DY: Mm-hm. Okay, then I'm skipping to the...um, if a software or an electronic environment have to be created to enable eLearning how would it look like for social sciences?
TK: Hm...
DY: Do you have an idea?
TK: Well, we are using here on Saxony, Germany's largest, um, virtual learning environment, um, all, a bit more than 100.000 students of twelve Saxonian universities and-and colleges do have access to the same platform. On the platform, every university has a, um, um, a, a, um, department wise organized, um, um,...collection of courses, materials and also, communication spaces and this is accessible for all types of the students, for all-for all disciplines in the same way, then, if you got detail, you can see that the... students from technical disciplines are, um, do have more technological stuff and perhaps, um, specific pieces of learning software, multimedia environment and so on and the social science students tend to be more focused on communication and exchange with the others.
DY: Yes, when I ask the same question for technical sciences, um, you will say again I think the visualization part of it?
TK: Yes.
DY: When software or an electronic environment should have to be created it should visualize the things or the content for the engineering students, for example? Or do you have...want to add anything?
TK: Yes. Yeah, I would say, I would just add here that the engineering students perhaps have some more effort on the technological function of it and only visualization of some or other factors in social science we don't have so many technical artifacts. We may have pictures of people, u-um, but-but we don't have machines. Um, we don't have many details to focus on.
DY: Yes. Do you think that eLearning is more suitable to social sciences rather than technical sciences? Or other way around? Do you have an idea like this?
TK: No, no, no...There is no such difference; it-it's the same for-for all of us.
DY: And, um, when you were conducting the same research study that I'm conducting now. What would you ask as a main question? Or what would you want to ask to the lecturers of each disciplines?
TK: Hm...So, one focus of our research was how to have the very nice developments to become a stable instrument in academic education. And now, one of our very recent research, um, questions is how is, um, the-the eLearning and the, um, education or practice related to the, um, science practice to the research practice? So, what means eLearning or what means science, um, and new media to eLearning?
DY: Mm-hm. So, we are looking the conjunction between both.
DY: Okay, thank you. Is there anything you would like to add to the interview or how did the interview feel for you? I'm at the end of the interview right now.
TK: Yes, okay. That was very quick. Um, one,...perhaps, this is important. Um, when, um, when, when looking back about ten years there was a tendency to avoid discussion about, um, at least in German science, um, in the German academic sector, to avoid a discussion about the specific learning effects of using media, digital media technology as a learning object and-and virtual learning environments. However, meanwhile, we are aware that learning outcome can be changed, can be better, it can be more flexible and so on, um, um, on the other hand, it's-it's not yet clearly answered for all of us what we expect and what we can expect when adapting those technologies. For example, when I as a, as a professor use learning technologies, um, like eLearning and the learning management system, what is my purpose or, what, what, what change of the quality and outcome of learning do I expect for my learners so, that-that's some questions that still need to be addressed in more detail.
DY: Mm-hm.
TK: And, there is a need for an ongoing discussion, among the lecturers and not only in the academic sector.
DY: Yes, okay. I have a question out of the interview, what do you think about this 'no-significance' in the research studies of eLearning when we look at the literature, especially in the US literature, they find no significance difference between traditional learning and eLearning, what is your opinion about this, can I learn?
TK: Um, yes, we did an experiment, or, we did a field, um, study very, um, very equipped students who were, um, um, learning abroad not-not students, um, um, secondary school pupils who did-did have to learn abroad with eLearning technologies and our interest was to-to figure out whether the eLearning, the using of eLearning instead of attending a classroom would lead to negative outcomes. That means, um, um, if they would, would learn less because they do not attend to real classroom and our outcome was we didn't find difference, so no significance, as you say.
DY: Yes.

TK: And, our conclusion was positive, because, the headmasters of some schools said no, we don't like to have that kind of technology because, um, the learning quality will become worse. And, we then could say, no our experimental data shows, um, it is the same.
DY: Yes, you can use both.
TK: And on the other hand, the conclusion then can be of course we can replace at least, to some extend the traditional learning situation when it's necessary by eLearning and we won't, we don't have to fear a reduce learning outcome and quality. So, and that's, um, even the no significance conclusion matters.
DY: Mm, hm. Yes, okay, thank you very much. And, thank you very much for your contribution to my PhD thesis if you want, I can send you a short summary of the thesis as soon as I'm finished.
TK: Oh...that would be great, when do you expect to defend it in, in the Ilmenau? Or would you defend it at home, in Turkey?
(Out of topic)
END OF TAPE 1.
END OF THE INTERVIEW.

Participant ID: Prof. Dr. Helmut Niegemann (HN)
Interview Name: eLearning expert interviews
Short Biography: University Professor working in the field of learning and new media in the University of Erfurt
Site/Location: Skype VoIP
Date of Interview: 31/10/2011
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (1 TAPE TOTAL)
(Out of topic)

DY: And, do you agree with the record of the interview?
HN: Excuse me?
DY: Do you agree with the record of the interview?
HN:Okay.
DY:Okay, let me begin with my first question, um, do you think that there is a difference between the eLearning practices of technical sciences and social sciences?
HN: Um, it depends (laugh).
DY: Okay.
HN: No, not principally.
DY: Mm-hm. Not, do- you don't think there is a difference between...them?
HN:No, it depends on-on some subjects. Um, some subjects in-in sciences, um, need more, some more drawings or also on, but, not in principally difference.
DY: Mm-hm, why do you think so?
HN: Why?
DY: I mean you don't think there is a difference between them and why, what kind of factors is, influencing factors there are in you decision?
HN: (Short laugh), um, the- the goal is to foster running and um, in principal no problem.
DY: Mm-hm.
HN: Except, um, learning is you have your own program, special subjects or there are may be some differences but there are also differences, um, in the, in different domains of social sciences so.
DY: Okay, what is the most important benefit that eLearning brings to technical sciences?
HN: Ah, so, it's the same for social sciences. But one is the, flexibility and time,
DY: Mm-hm.
HN: Um, and...one, um, if it is, if it is way designed that is always say precondition, if eLearning way it is designed there are running opportunuties which are not so easy to-to get without eLearning.
DY: Mm-hm.
HN: So, you can... you can better point together, um, real, um, real viewings or pictures of real things, this, um, more technical drawings or other drawings and, abstra-abstract drawings.
DY: Mm-hm. Drawings...okay, what is the most important challenge that eLearning brings to technical sciences, as a challenge?
HN: Challenge...
DY: Mm-hm.
HN: Challenge...the question of challenge, compared to what? Compared to...
DY: Compared to traditional lectures what can be the eLearning's challenge to technical sciences?
HN: Mm-hm. Yes, I think the production is... may be much more, um...cost effective, um, compared to subject-subject matters from social sciences. So, it's technical sciences and you need applets or other things like that, some may be, um..., yeah, rather costly.
DY: Mm-hm. And, what is the most important benefit that eLearning brings to social sciences?
HN: Yeah, besides the flexibility for the learner and the teachers,
DY: Mm-hm.
HN: Um, you may-can use, um, simulations especially, it is comparable to technical sciences but you can use, um, a simulation and, social sciences perhaps a project management and it's easy to simulate by eLearning.
DY: Mm-hm.
HN: And, that would be very complicated to do it without eLearning.
DY: Mm-hm.
HN: It cost very much and makes no sense (short laugh).

DY: (short laugh). And, what is the most important challenge that eLearning bring to social sciences?
HN: Yes, there are..., it dep-in social science are... very different from psychology to economics also, so, um, social sciences are different. Um, yes, there is, the, um, social psychological systems are much more complicated than technical ones.
DY: Mm-hm.
HN: So, simulation or even say, um, yes to...
DY: Mm-hm.
HN:...make it visual, yeah, visualize, visualizations is not so easy,
DY: Yes.
HN:...and to find good visualizations, to create, um, meaning for stimulation and so on, may be much more complicated because systems are more complicated.
DY: Yes. And, what kind of eLearning tools as instructional media do you think social sciences prefer to use?
HN: Um, I think..., um, I'm not sure, um, what they are tools to prefer. Tools for, um, to produce mini lectures but they used by, there are also autoring systems and things, yes, authoring systems and, um,
DY: ...systems.
HN: I never heard specialized by specially prefered by technical or-or social, the teachers for social sciences or technical sciences.
DY: Yes.
HN: Things like ?(Lecturnity)? or Camtasia or ?(Mediator)?... or this, um, Adobe [inaudible segment].
DY: Mm-hm. For example, do you think that social sciences prefer to use learning management systems more than technical sciences, do you have a so idea or?
HN: Oh, it has nothing to do with the domain, learning, learning management systems are, um, just made to bring together communication with the-the teacher or e-tutor,
DY: Mm-hm.
HN: ..., um, to present learning obj- learning materials and so on.
DY: Mm-hm.
HN: So, that's neutral concerning the, concerning the subject matter.
DY: Mm-hm. You mean that, um, the tools are not dependent to the specific disciplines, the tools are therefore, used for each discipline, I mean...
HN: No, I don't think so.
DY: Uh-huh.
HN: I think today tools are multi-multi-purpose tools.
DY: Mm-hm.
HN: I don't know any tool which is specialized. You need some more tools perhaps for technical subject matters, tools to create, um, special applets, mathematical applets, also.
DY: Mm-hm. What kind of eLearning scenarios do you think that social sciences prefer to use?
HN: It depends on the goals and the, the, the structure of the content.
DY: Mm-hm.
HN: It is also, um, it is also very different into the social sciences as it's in, in natural sciences.
DY: Mm-hm.
HN: So, um, I think with scenarios you mean what, what I'm call formats.
DY: Yeah. Actually, I'm meaning for example, task based scenario or problem based scenario, role playing scenario, yes.
HN: Yes, they are just categories of scenario. It depends on the goal, structure of the content structure, on other things. I'm- I'm not sure you know my book on 'Kompendium', it's, it is only in German, the Kompendium- 'Kompendium Multi- Kompendium Multimediales Lernen'.
DY: Mm-hm.
HN: And, I describe, um, a model to, um, a frame model for eLearning from instructional design.
DY: Yes.
HN: There is a decision, at first as a decision, for a format.
DY: Mm-hm.
HN: There there are several problem based formats.
DY: Mm-hm. Okay, then, you mean that first we should consider the instructional design and then, we can decide, I mean within the instructional design we can decide the tools and the scenarios.
HN: But, in-instructional design is a whole process.
DY: Mm-hm.
HN:The systematic-systematic design, um, of eLearning environment or multimedia environment,

DY: Mm-hm.
HN: ...and there is several fields of decisions.
DY: Mm-hm.
HN: If you design eLearning you have to make decisions, in different domains, or in different areas.
DY: Yes.
HN: And one very important first decision is to decide which format,
DY: Mm-hm.
HN: Goal based scenario, or a simulation or a what I call eLecture or so, yeah, it does, a dosen of different formats.
DY: Mm-hm. Okay, it depending on the formats, you mean. And, um, is it the same, valid for technical sciences, your ideas?
HN: Yes.
DY: Okay. And, what do you think about the social forms of the students such as individual work or group work on eLearning environments with regards to social sciences?
HN: Ah, ah...,you mean the cooperative learning?
DY: Yes. For example, do social sciences prefer to use individual work or group work?
HN: Yes. It has nothing to with specific domain or a subject matter but, um, collaborative learning, computer based collaborative learning, it has a lot of research and research shows it only functions, um, function, um, if there is some scripting. And just collaborate to-to-to tell students collaborate is not enough, it's often it's worse than individual learning. But, it's possible to foster collaborative learning by skript-scripting.
DY: Scripting?
HN:Yes.
DY: Okay. Could you please evaluate the importance of collaboration and communication...you already answered now...in social sciences environment...and the technical sciences environments?
HN: That, excuse me...
DY: You already evaluated, you already evaluated, I know. Okay, I'm skipping to the next question. If a software or an electronic environment have to be created to enable eLearning how would it look like for social sciences?
HN: Um, as I, as I told you, I, um, in principle, I see no difference except for some for technical sciences you need, um, some tools but these tools must not be integrated because, in the end, there will be flash or or similar formats so, makes not, for the learners, that's no difference in the tool or the learning management system.
DY: Mm-hm.
HN: But, yes in the programming, there is a program that may need some other tools but they are not part of the eLearning environment.
DY: Mm-hm. And do you have an idea like eLearning is more suitable to social sciences than technical sciences?
HN: No.
DY: No. Okay, and, when you were conducting the same research study as I'm conducting now, what would you ask as a main question?
HN: the main question, on...?
DY: I mean that now I'm conducting interviews with the experts, eLearning experts,
HN: Yeah.
DY: ...in Germany and in the second step, I'll conduct those interviews with the teachers from technical sciences and the social sciences in Germany. And what would you ask as a main question to the teachers with-within the framework of this research study?
HN: The..(laugh), main question to-to know what, what the goal?
DY: To know the eLearning practices in specific subject matters.
HN: Ah, I, for me, I would be interested, whether, they are, the design, design and teach following systematic instruction, um, route or principle from science of psychology or whether they are, they are competent in instructional design.
DY: Mm-hm.
HN: It...is, for me, um, it's a kind of precollage. It has nothing to do with technology, educational technology.
DY: Mm-hm.
HN: So, it's just-just doing and sometimes it's okay, sometimes not so but some techonology. And, the problem is in Germany is that, um, instructional design and instructional technology are, um, widely not known, not tea-taught.

DY: Mm-hm.
HN: We do it in [inaudible segment], there is the chair in educational technology but most teachers do it, do what they are saying.
DY: Mm-hm. Okay. Then, you would (confusion & laugh) ask as a main question, if the teachers are competent in instructional design, systematic design of instruction on eLearning environments.
HN: Um, what question? I would...
DY: Your question will be this, right?
HN: Yes.
DY: Okay.
HN: Because it is not yet, it was never taught, in ten years ago in Germany.
DY: Okay. This was my questions. Is there anything you would like to add to the interview?
HN: Um, no.
DY: No...(laugh).
HN: (laugh)
DY: How did the interview feel for you?
HN: What you want to know?
DY: Um, is the, were the questions okay for you? or How did the interview feel for you?
HN: Yes, it's okay.
DY: Okay, thank you. I will send you a short, um, summary of my PhD thesis if you want as soon as I'm finished.
HN: Yes.
DY: Okay, and I'm very thankful to you that you spare time today to interview with me and I'm very glad. As soon as, I come to Ilmenau, I want to visit you in your, um, free time.
HN: Oh, no problem. But, if you, you are working with Paul Klimsa, or?
DY: Mm-hm. Yes, I'm working with Prof. Dr. Paul Klimsa.
HN: Yes.
DY: Yes.
HN: So, greetings to him (laugh).
(Out of topic)
END OF TAPE 1.
END OF THE INTERVIEW.

Participant ID: Dr. Annabell Preußler (AP)
Interview Name: eLearning expert interviews
Short Biography: Scientific Staff working in the field of Mediendidaktik and Knowledge Management at the University of Duisburg - Essen.
Site/Location: Skype VoIP
Date of Interview: 14/10/2011
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (1 TAPE TOTAL)
(Out of topic)

DY: ...um..., the interview will duree appropriately 40 to 60 minutes depending on the, depending on the information flow, and do you agree with the record of the interview?
AP: Yes, of course.
DY: Okay, then I will begin with my, with my first question. Um...do you think that there is a difference between the eLearning practices of technical sciences and the social sciences?
AP: Um..., I'm not, I'm not fit in the technical sciences. I, I only have the view on the pedagogical um, studies...
DY: Mm-hm.
AP:... but I think that, um..., I don't know, I think that group work, for example, is more easy with this, yeah, pedagogical or non/non-technical issues but I'm not quite sure about this, because...
DY: I want only your opinion about issue (short sharp laugh).
AP: Yeah... because I think that um..., the...the sciences, the, um..., sciences, um, that are build on facts, they don't need much discussion or that anybody can, can give an opinion to something and the..., like pedagogics or something, they, um..., it/ it's much more interpretation on, on, on things that basic facts only, so that, um, collaboration is more in the foreground, but, I'm not quite sure about this if, because I don/don't really know the technical sciences so much.
DY: Yes, mm hm. But, only your opinions...(short laugh)
AP: Okay...
DY: Um, okay, you think that there is a difference, then?
AP: Yes.
DY: Okay. Um, what's the most important benefit that eLearning brings to technical sciences in your opinion?
AP: Um...
DY: What can be the benefit for the technical sciences?
AP: Um, especially for the technical or in general?
DY: Um...for, especially for the technical sciences, right.
AP: Okay. Um... may be that..., it is not important to be at the same place, um, in physics, I mean, um, that, um, it/it is not important to go to to laboratory and make a experience or something,
DY: Mm-hm.
AP:...but...it/to/to stay at home and do things in front of your computer and have simulations and have the same results as in a, yeah, real situation.
DY: Yes.
AP: I think that is one of the benefits.
DY: Uh-huh. Um...and what is the challenge that eLearning brings to technical sciences?
AP: Um..., the challenge, pff, I think, um..., it, I think the, the challenge is that eLearning is mostly compared with traditional learning situations and people say that, um, or, or, um, conduct studies in order to find out if a traditional learning is better or eLearning is better...
DY: Mm,hm.
AP:...and just regard the traditional way of teaching, um, so for example, for just reading books eLearning would be, would be any better, we would not have any benefit but eLearning has much more opportunuties than just book reading, for example.
DY: Yes.
AP: But they, they, um, only regard this traditional e-teaching. So, um, oh, I think, the, the structure of online courses, for example,
DY: Yeah.
AP: ...must, um, take into account, the, the possibilities that are, um, yeah, possible with eLearning
DY: Mm-hm.

AP: ...from the beginning on and not just say okay, we do a course that, that we ever did, um, put it on Moodle.
DY: Yes.
AP: So, yeah.
DY:Okay, and what is the most important benefit that eLearning brings to social sciences?
AP: Um, this is, I think the collaboration part.
DY: Mm-hm.
AP: So that people can work together on, on topics and, um, can, can share information,
DY: Mm-hm.
AP: Much more easier than traditional learning.
DY: Yes. And the challenge that eLearning brings to social sciences?
AP: The same as the technical that, um...
DY: Uh-huh.
AP: ...that the, um, traditional teaching should not be..., should not be carried on so much because, um, every course needs a special didactic um, conception on..., on media, learning,
DY: Yes.
AP: and, um, not the traditional way.
DY: Mm-hm. And, what kind of eLearning tools as instructional media do you think social sciences prefer to use?
AP: Um, you need, you mean tool like Moodle or something?
DY: Um, yes, learning management systems,
AP: Okay.
DY: or blogs, wikis, web 2.0,...
AP: Yeah, yeah, I think,
DY: etc...
AP: Um, for for, I think on Moodle is a very good platform, then, we have twitter, um, or, um... any kind of, of, um, web 2.0 application like, we have in Germany, we have a platform called Mixxt,
DY: Mm-hm.
AP:...um, which is, um, like a, yeah like a little platform that everybody can, can build for, for herself or himself.
DY: Mm-hm.
AP: And, um..., and podcasting,
DY: Mm-hm.
AP: Um...an- and wikis for for collaboration.
DY: Yes.
AP: And, of course, blogs but I think blogs have lost a bit of popu- popularity in the last... months.
DY: And, um, what kind of eLearning tools do you think technical sciences prefer to use?
AP: Um, I think wikis are in, in a, are important for technicals and, um, also, um..., something like knowledge bases so tha- so like a, like a, like tagging for example,
DY: Mm-hm.
AP:...that every, um, posting can be tagged with the, with, um, with words so that if someone needs a special knowledge, just can click on the tag and find answers.
DY: Mm-hm. Yes, um, what kind of eLearning scenarios do you think social sciences prefer to use?
AP: Um, I, I, I think, um, they do not really focus on, oh, only eLearning, but do some kind of blended learning with a kick off meeting at the beginning,
DY: Mm-hm, then, a few weeks of eLearning, then, a kick of, and a few weeks of learning, then, a, um, a meeting at the end. I think this what, one of the scenarios that, um, are used.
DY: Mm-hm, and for the technical sciences? Which...what kind of eLearning scenarios do you think?
AP: May be more...
DY: Is it the same or is there a difference?
AP: I, yeah, it could be the same but I think, um, it is not necessary to meet so much often, because I don't know, if it's true but I think the tech-technical studies do not need to meet so, so, um, regularly.
DY: Mm-hm. Okay, um... what do you think about the social forms of students such as individual work or team work on eLearning environments with regards to social sciences?
AP: Yeah, I think, this is the most important thing, I think it is really really a benefit of, of eLearning in..in this part.
DY: Mm-hm. And for the technical sciences? Is it more like individual work or team work on eLearning environments?

AP: I think team work is the most important, um, thing that eLearning is-is allowing, so I think that the teamwork is, is the, yeah, is the best.
DY: Oh, for social sciences you mean individual work is more important in eLearning environments or the team work?
AP: Oh, team work in both yeah,
DY: Uh-huh!
AP:...teamwork.
DY: In both.
AP: Yeah.
DY: Okay, and could you please evaluate the importance of collaboration and communication in eLearning atmosphere from the social sciences point of view?
AP: Yeah, because I think that um, it' s really really important because, um, I think that it's not so as I said, not so based on facts, um, that people have to discuss or inter- make interpretations on, um, on readings or something so that I think for, for the social sciences, it's really really important to, to collaborate and to share knowledge and to, um, get in contact with each- with each other and for the technical, um, it's, it's also important but I, I would think that, um, the, the part of discussing is not that important as in the social sciences.
DY: Mm-hm.
AP: But, of course as a knowledge base, it is also important to work together or to develop products,
DY: Mm-hm.
AP: But not, not in regarding of discussions.
DY: Mm-hm.
DY: Okay, um, if a software or an electronic environment have to be created to enable eLearning how would it look like for social sciences?
AP: It would be like, a bit like may be facebook that people are connected with eachother so, um, that if I, I come to point of, um, when I think, um, I need to know much about, much more about this aspect, um and I don't may be don't know much about this, um, I can find people that do know about it, so, I think this is one of the most important thing and, and, I think that the same in technical because, um..., oh..., yeah, we come to the point that, um..., the knowledge is actually there but nobody knows where to find it. (short sharp laugh),
DY: (Laugh)
AP: So, if you, if you just, um, connect the people with each other it might be more easy.
DY: Yes. Okay. Do you think that eLearning is more suitable to social sciences or technical sciences?
AP: In both. I think, it's both.
DY:Uh-huh. And...
AP: But, this maybe different kind of didactic-um, didactics. But it's may be,yeah, it's actually in both.
DY: And when you were conducting the same research study ast I'm doing now, what would you ask a main question?
AP: (laugh)
DY: (laugh)
AP: Oh...
AP: Um...
DY: If you don't have any, you can skip (laugh).
AP: Ah, let me just think it.
DY: Okay.
AP: seconds, um, oh...
DY: Okay, of course...
AP: (laugh), may be I would ask about the, um, the motivation of the students, also.
DY: Mm-hm.
AP:...um, if, if people think that it is more motivating to have a, to have eLearning or if they need more support, oh, or even, um, more like, um, technical, um..., hardware like, um, I kno-I know that in Germany, there are some universities that give away iPads to all the first semester students,
DY: Uh-huh.
AP: May be something like this.
DY: Mm-hm...okay, thank you. And, is there anything you would like to add to the interview?
AP: um, oh, sorry, I didn't, um, understand.
DY: I'm actually finished with my questions,
AP: Oh?

DY:...and I’m asking is there anything you would like to add to the interview and how it, did the interview feel for you?
AP: Oh, I feel fine, but I’m a bit, um, I’m not speaking English everyday so (laugh)...
DY: No, it was fine, thank you. (laugh). It was a nice interview.
AP: Ah, okay (laugh).
DY: Okay.
AP: Yeah, I’m glad with that, um, if you have any results, may be you can...
DY: Yes, I will send you a short summary of the PhD thesis as soon as I’m finished.
(Out of topic)
END OF TAPE 1.
END OF THE INTERVIEW.

Participant ID: Dipl.-Ing. Rolf Reinhardt (RR)
Interview Name: eLearning expert interviews
Short Biography: Managing Director of Learning Agency Network an international value added service for learning providers.
Site/Location: Skype VoIP
Date of Interview: 28/06/2011
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (2 TAPE TOTAL)
(Out of topic)

RR: Should I introduce myself first of all?
DY: Yeah.
RR: Are you recording or should I record it for you?
DY: I'm recording it. You agree with it, ok?
RR: Ok, that's fine. Ok, so my name is Rolf Reinhardt. I was working for two years in the European Foundation for Quality in eLearning responsible for managing the secretariat and conducting different activities such as European projects in the field of education so how can we improve education in primary school, secondary school as higher education, educational trainning and learning and we were actually observing all kind of levels, so the personal level or the course level until the level of the organization, how could education in organization improve,
DY: Yes.
RR: ...and um yes, since May, I'm now launching my own organization, it's called learning agency network and it's actually um.., facilitating of services, of value added services related to learning for individual, organizational and societal growth.
DY: Yeah, okay. Thank you very much. And, um, should I introduce you my research study? This research study aims to find out actually the different e-learning practices of different academic disciplines specially focus on social sciences and technical sciences.
RR: Mm-hm.
DY: And the aim is to build a model or a theory for e-learning literature that demonstrates the different academic disciplines approaches to e-learning. That's why, I'm conducting now expert interviews with e-learning experts who implies e-learning in a professional manner and later on, I would like to conduct interviews with lecturers from different fields to get their opinions. But first, I should have to take information, primary information that I can conduct these questions with the lecturers, I mean, that I can ask lecturers if they agree or disagree upon the recor- interviews that I conduct with the experts.
RR: Mm-hm, okay, fine with me.
DY: Yeah, okay. Should I start with the first question?
RR: Yes, sure.
DY: Okay. Do you think that there is a difference between the e-learning practices of technical sciences such as engineering sciences and social sciences?
RR: Well. I think that there is, um, there are different applications possible, for example, um, in the traditional engineering sciences, me, myself, I'm also an engineer.
DY: Yes, I see from your CV.
RR: Um, yes, it's over all about, um, learning a certain way of working so means that you have to apply foremost and you have to get first of all quite deep understanding of,um, what actually, um, you're working in and, um, therefore it's necessary actually that you are passing through your primary education, your secondary education and higher education to become a specialist actually in your field. And, the, the, in e-learning, there are different models so to say, so, there is a traditional e-learning courseware was actually designed as a click-through application.
DY: Mm-hm.
RR: Means that it was over all targeting to, um, to get an understanding or to transfer a certian knowledge.
DY: Mm-hm.
RR: So, it stays still on a quite low level in the, um, when we see, for example, the taxonomy after Bloom.
DY: Mm-hm.
RR: So, this traditional quality courseware goes to the knowledge and to the comprehension level. But, um, for example, the new forms of e-learning that are now arising, in particular, community learning

DY: Mm-hm.
RR: Um, the group work, and facilitation, and also, the fact that it is not so important anymore that the people are sitting together in one room and working on one topic that, by that, one can consult international specialists or collaborate of international students, etc... this offers in a first instance, I would say more potential to...social studies.
DY: Social studies?
RR: Yes, when it's about discussion and generating a kind of an awareness of localization aspects or social backgrounds etc...
DY: Mm-hm.
RR: I think that here the new forms of e-learning are providing quite a,um, very good possibilities.
DY: How about technical sciences, um, do you think that traditional courseware is more appropriate for technical sciences? Or, also the new forms are appropriate for the technical sciences, too?
RR: I think that the new forms are also, appropriate for the technical studies, however, a bit in another way. So, for example, when we are talking about user generated content or a student's encouraged to do a blog and to use a blog as a learning diary for example, um, and is creating out of this, user generated content a learning ressource himself or herself. I think this relates more in a direction of, the, um, of the social sciences. However, I'm not sure if one can divide the purpose so strictly into social sciences and the engineering studies. It is a good approach, I think it is a good approach, and it, um, it, shall we also question the current way of thinking because, I mean most of the people who are designing new learning methods and models are having a social sciences or more a social sciences backgrounds so, they are coming from backgrounds of psychology, etc... there are not many engineers actually in the field, of those ones who are developing e-learning... and when we see for example, the application in companies so vocational educational trainning sector,
DY: Mm-hm.
RR: ...what those international companies, um, were focusing on, um, engineering such as Siemens or IT-companies etc... what they are doing, of course, they are also using e-learning models or methods, for example wikis and so on. But, the question there is, goes to a bit more into a detail discussion, so, because it is about, um, you are, when you are leaving the students sector means that you apply what is already existing and what is already well known and you are entering a field of genereting new knowledge.
DY: Mm-hm.
RR: ...or developing something, then, um, you have to see that there is, in the practice of the companies, people are not liking so much to share their special view, they are rather, willing to share kind of a practice or something like this. But, to share for example, a new developed form, etc... this is normally not so common (short laugh). You know what I mean?
DY: Yes.
RR: ..like in a e-learning way,
DY: Mm-hm.
RR:...mm, at least.
DY: Yes.
DY: Ok. I'm now, now, skipping to the next question. I want to ask what is the most important benefit that e-learning brings to technical sciences? The most important benefit.
RR: Yes. I would say that there are two benefits. One benefit is, in the when the e-learning application made in a good way in a direction of a game-based learning course,
DY: Mm-hm.
RR: ...or a simulation, for example,
DY: Mm-hm.
RR:...one can experiment a lot of things in technical science with e-learning.
DY: Mm-hm.
RR: So, for example, how is the wave length changing when the tone of a, um, um, of a certain, um, um, noise or whatever is changing.
DY: Yeah.
RR: So that you can directly see it on the effect so you can...
DY: You mean such, such as virtual labs something else like?
RR: Yes, it can be integrated also in virtual lab. Also, in second life there are very nice applications and very nice use cases. For example that someone can dive into a cell,
DY: Yes.
RR: ..see the differences, gnomes and gens. So, this is actually possible and I think that’s the possibility, that’s on a first way, it’s about how to visualize,

DY: Mm-hm.
RR: ...or how to simulate, um, what is happening and which would be quite difficult to visaulize it in a different way.
DY: Yes.
RR: And the other, and the other possibility is about the reflection.
DY: Mm-hm.
RR: So, and here e-learning actually provides possibility that a student can ref-can reflect on an experiment or on an inside or on what he or she has learned and can share it with others.
DY: Mm-hm.
RR: You know, and it's about collaboration and group working, etc...
DY: Mm-hm.
RR: I thing those two aspects are considered as main important aspects.
DY: benefits?
RR: Yes.
DY: Um, and, what is the important, the most important challenge for technical sciences that e-learning brings?
RR: Well, the challenge is I would say that..., um, I mean it's difficult. We have to divide a learning course now into different steps so, for example when we are taking a typical learning course for engineering studies such as, um, electronic,
DY: Mm-hm.
RR:...then, one part is about the understanding. It is the teacher instructing the students about how things are working, giving explanations in the forehand. Later on, normally in a traditional university or in a collages or whatever, you are applying what you have learned. So, you are experimenting,..and I think that the advantage that e-learning could bring is that much more could be experimented not as deeply as it could be in a real hands-on activity, which I consider still very much important. I mean, if you are an engineer it is imporant that you are building your own devices etc...it really makes sense but there is something coming in between, I mean the general, um, I mean when we are now thinking about the different societies or different knowledge societies, for example, we can see the example of Europe. And, in Europe normally, everyone would be able to study an engineer degree and he or she would be able to study this in a certain place, close to your home, or you move in to a certain place, etc... and you are then working in a group or in a class-room setting with twenty other people in a laboratory.
DY: Yes.
RR: But if you see, for example, other continents such as Africa or also in Asia like Russia, etc...
DY: Yes.
RR: They are, people are not having the possibility may be to join such a classroom setting or where there are so many people that they are not fitting into a classroom or that they can not simply make this practical use out of what they have learned before. I think there, e-Learning could provide at least a glimpse of experimenting and of, yeah, trying, other things of your own. That’s may be what I would consider as a main benefit.
DY: Yeah. And what is the most important benefit that e-Learning brings to social sciences?
RR: Well..., I think that social sciences...so we have to...first of all, we have to think of what is actually the reason for social sciences (laugh). I mean personally, I wasn't studying anything related to social sciences so I don't know.
DY: Yeah.
RR: I can just interpret it. But when we are, when we are thinking about a maturity model of a society, ok, and [inaudible segment] what is actually definning kind of an interesting model for societies, how societies are maturing, and the first level according to him was knowledge and technology.
DY: Yes.
RR: Okay, and the progress in knowledge and technology. And the second step, for him was the progress in socialization of man,
DY: Mm-hm.
RR: ...and the third step was the progress in spirituality or ethics or whatever. You know? And I think that e-Learning could help in the progress of socialization of man in a way that, um...so, when we are thinking about the maturity process of an individual, for example, how is and how would an individual so a student who is doing the social sciences,
DY: Mm-hm.
RR:...be able to benefit a society,
DY: Uh-huh.

RR: Okay? Then, we have to see that there is one thing which is first of all, which first of all, needs to be understood by this individual that means that he or she is not doing the things because of the own benefit but because of the benefitting others,
DY: Mm-hm.
RR: ...okay? And, this is about sharing and it's about communication, collaborating with others.
DY: Yes.
RR: And, I think that e-Learning in its widest sense, so, for example when I was working in the European Foundation for Quality in e-Learning, I was talking for president for us, more or less everything was e-Learning what we are doing right now is actually e-Learning (laugh).
DY: Yes, everday (laugh).
RR: And someone is googling and searching, finding something on wikipedia or etc...it's already e-Learning.
DY: Yeah.
RR: So, the question would be then, um, so, in terms of benefitting, what, what is the essential benefit of e-Learning for social studies...then, I would say it's the posibility to share views, to communicate, and to collaborate and to understand, so. And to understand based on an open, participatory process. I guess that would be the, that would be what I would saying.
DY: main benefit, yes.
RR: Yes, yes.
DY: And the challenge that e-Learning brings to social sciences?
RR: Well, I mean...I would say that there is one big challenge of e-Learning and this is that...um, it's not seen as adequate or let's say equal to traditional learning, yet.
DY: Uh-huh.
RR: And that the reason for this is actually that most of the traditional universities and traditional trainning institut, they are resisting rather on e-learning than that they are really implementing it.
DY: Mm-hm.
RR: So that when you are seeing, for example, as just one example, there is an university in Europe that is the Universidade Oberta de Catalunya, the open university in Barcelona and they are actually amazing. I mean, they have amazing pedagogical models behind their e-Learning courses. They are really thinking about how to benefit the individual in terms of how to enable that individual to reflect, in a broader sense, also to be reflected upon from peers, from the tutor, etc...the tutor is the guide.
DY: Yes.
RR: ...and they are going even until societal level, to say, how can we benefit for the society. I think it is quite interesting what they are doing.
DY: Yes.
RR: Still the traditional universities are not seeing them as equal to themselves.
DY: Uh-huh, yes.
RR: So, and that is...I think that is the biggest challenge for e-Learning in general. It's that, on the one hand, we are already now using e-Learning widely,
DY: Mm-hm.
RR:...but on the other hand, the problem is that e-Learning as such, also with the term e-Learning, it has not nice connotations, the people are not understanding something,
DY: Yes. out of it, in particular, when they are coming from a traditional educational organization.
DY: I can share with you my experience in the Turkey as I was conducting my master thesis there, I was saying okay, I'm conducting my master thesis about e-Learning and everybody looked at me, and what is e-Learning. I had to explain them what e-Learning is actually (Laugh). And, it was like, very hard to make them go in the topic because they are always resisting no, we can't learn on the electronic platforms, it must be face-to-face, you know?
RR: Mm-hm.
DY: (short laugh) out of the interview now.
RR: Yes. So, I think that in general so it is an interesting question to elaborate the sense or the benefit of e-Learning on two cases. You know? On two opposite cases. I think it is an interesting approach.
DY: Mm-hm.
RR: I guess the result will be that you'll find out there are some similarities that e-Learning provides in general for learning process.
DY: Yes.
RR: But it is not important what is the use case for this. But that for sure, there are that there are somethings, and these might lead to a better communication between the two...let's say parties,
DY: Mm-hm.

RR:...or between the two parties, the social sciences which are as I can see more and more introducing e-Learning methods anyway, and the traditional engineering studies, so.., what they are doing.
DY: Mm-hm.
RR: Um, um, I guess it is interesting to, for sure, also show what could be the, what could be possible steps.
DY: Yes.
RR: And, for example, in order that such a university has success with its e-Learning policy, it is very much important that the top management is behind. But, the top management has to empower the middle management to conduct the necessary activities.
DY: Yes.
RR: So, normally, the top management is, um, on the first front, so...doing the first activities. And on the second level, they have to convince teachers and trainers that there are so many fears and so many doubts on introducing e-Learning because the, the most common failure, in my opinion, or mistake, is that the teachers are thinking by introducing e-Learning, they are going to substitute themselves.
DY: (laugh), yes...
RR: and that is not true at all, so...
DY: Yes, of course...
RR: ...with the university in Catalunya or the open university in UK, it's still very much important that you have guidance.
DY: Mm-hm.
RR: It is then important, of important when you are going on the second level on a higher level of the taxonomy of Bloom,
DY: Mm-hm.
RR:...like you are going for the application of analysis and the synthesis, etc... because, they are actually important to have a guide or someone who is reflecting.
DY: Yes, okay.
R: ...and you'll see, I mean at the moment, the interesting thing at the moment is that we are amounting, we are following a certain trend, and the trend is two fold. On the one hand, we say that the introduction of open educational resources,
DY: Yes.
RR:...is seen as the most or the strongest potential of e-Learning in the future what I'll disagree. So, I would say that for sure it would be more and more use open educational resources but it will be not totally mainstreamed, in a sense. I don't think so. I don't think so that it will mainstream. And on the other hand, we have the trend also the people are saying "why do you need a teacher? We need a guide" and the learner is actually teaching the other learners.
DY: Mm-hm.
RR: So, it's about peer-learning.
DY: Mm-hm.
RR: And, here I think also an interesting approach but there is someone needed in particular in the university sector might be different actually when it's for vocational educational trainning or adult education.
DY: Yes.
RR: But for, for universities the role of a professor or someone who knows, someone who guides through it’s absolutely important and should not be underestimated.
DY: Mm-hm. Shall I skip to the third question?
RR: Mm-hm.
DY: Um, what kind of e-Learning tools as instructional media do you think social sciences prefer to use?
RR: I mean, there are wide range of tools which are enabling quite a lot already for social sciences like those typical open source learning management systems,
DY: Yes.
RR:...the most well-known is Moodle but what I would even rather in a way recommend is Ilias,
DY: Mm-hm.
RR: ...it is also an open source learning management tool developed in Cologne but quite widely used already in Europe and with advantege that it is not only a learning repository like Moodle but it has, you can follow really a pedagogical structure.
DY: Uh-huh.

RR: And in addition, there are communities, I mean for example, the open university in UK, they have launched a community called "Cloudworks",
DY: Mm-hm.
RR:...I guess that for some discussions it might be, it could be useful to open a cloud and to include some of the discussions etc...and there are some others are even using Facebook or Linkedin. So, however, personally, I will not really advice to use it. I would facebook for communication but not really for generating knowledge and so on.
DY: Yes.
RR: So, I guess that one could use, what I would advice to an university, so I mean it's...one can see it from two sides.
DY: Mm-hm.
RR: One approach is the buttom-up approach means that there is a teacher or a profesor who says I would like to introduce e-Learning methods in my course,
DY: Mm-hm.
RR:...means that I'm recording even my lecture and putting them online on YouTube or Vimeo or whatever and in addition, I'll have a Blog that I'm writing on and have comments from my students or I'll recommend my students to blog and to feedback on what they have learned in their studies or I would like to introduce some skype meetings or some IM meetings or whatever...so, this is the one approach. It is about the..., yes, an individual has an idea about and wants to realize it with low cost, for sure,
DY: Mm-hm.
RR:...and high use. And the other approach is the top-down approach where university thinks about what systems to introduce. Should we introduce a Blackboard system or a model system or whatever. What would be right to offer our teachers and there the question would be not so much related to a tool or an application.
DY: Yes.
RR: But the application is more related to a certain purpose or policy and overall to the change management.
DY: Mm-hm.
RR: So, it's a...if an university for example, has an idea or has even such as there is the... 'VMU-Vytautas Magnus University' in Lithuania and they are the, they are also an online university and they got from the state of Lithuania, they got the order, they should enable all Lithuanians, either the ones who are living in Lithuania or the ones who are living abroad, they should enable them higher education studies.
DY: Yes.
RR: So if they have then such a, such a demand, they have to think, ok, how are we realizing it and what they have done and the thing that is very good and first of all, called a meeting with all the stakeholders involved then they were asking them what tools do you think are interesting, they have aslo conducted some trainnings and explained,
DY: Yes.
RR:...what is a blog, what is a wiki and so on. And, I guess that was a very good approach and they have also very successfully managed to motivate the teachers and to take the fear away from them,
DY: Mm-hm.
RR:...so now they are, really everyone is on board and they are very much motivated to work on this e-Learning platform and they also see the benefit of it.
DY: Yes, I want to ask now the same question for the technical sciences.
RR: Yes. So, for technical sciences, I will say that what personally I would...
DY: As you are not personally dividing the tools for each sciences but I really designed the question like that.
RR: Yes. No, no, no. It's ok. Um, for someone, for....yes for an engineer or engineering course, I would say it would be good to-to search for some open educational resources.
DY: Mm-hm.
RR: There is also one academy which is quite good, it's the Khan Academy, I don't know if you have heard about it. But it's a guy who was doing some videos I guess for youtube for example, and explainning all kinds of things also the technical things.
DY: What was the name "Khan Academy"?
RR: Yes, I can wrote it down. So it's "Khan Academy". And it's probably one of the most successful examples of open educational resources. And, this is the website "www.khanacademy.org".
DY: Thank you.

RR: So...and, um...this is something that I prepare my students for a course that they can, see, ok?, look, this is other people that have done lecture like this. Then, I would also may be check the web-site of the MIT, so "ocw.mit.edu/index.htm". It's...by the way there are also some Turkish universities involved in this.
DY: Yeah.... Can you hear me?
(Internet connection problem)
END OF TAPE 1 (2 TAPE TOTAL)
START OF TAPE 2 (2 TAPE TOTAL)
DY: Can you hear me?
RR: Yes, know I can hear you.
DY: Okay.
RR: Okay, so in general, I would actually for both sciences for both sciences, social sciences and engineering sciences,
DY: Mm-hm.
RR: I would recommend the same thing.
DY: Uh-huh.
RR: I would say, first of all think of what resources can you use to prepare your course. And then, I would check the Khan Academy and MIT. I mean the MIT is the most well-known,
DY: Yes.
RR: and I guess also the students will appreciate if they are course somehow in line whit what is the international benchmark.
DY: Mm-hm.
RR: Okay, for the students it would be probably great.
DY: Yeah.
RR: And then, I would say, okay, check what is there, and then the second thing what you can do so, (typing) that's the preperation of the course,
DY: Yeah.
RR:...in the first step, a first check open educational resources,
DY: Mm-hm.
RR:...then, you can integrate, and then.... second check paid resources, or something, or commercial courseware, okay?, this is to prepare them. Then, when they are conducting the course, they can actually record it, so conducting the course, this is record your lecture, and there are tools like for example Camtasia, is quite good or Adobe Captivate or others, I mean I guess there are even some authorwares which are free available.
DY: Yes.
RR: And...and then, list additional references, so, and...
DY: Mm-hm.
RR: ...enable experiments or simulations, and this can be done either online,
DY: Yes.
RR:... or, the simulation, or...you can also encourage the students to try it out practically in their environment. And then,... ask for feedback, and then, this is the third level, it's about follow up, follow up to course, and here, there are,
DY: Mm-hm
RR:...tools like a wiki or blog or forum or whatever, you know? But for sure, also, um ....
DY: yes.
RR: yes, the question would be for teacher, how you can encourage your students to reflect upon the course.
DY: Mm-hm.
RR: All what you do is not just the tools but also think of strategy or motivation for the students. So, engage themselves, yeah, like for example, it can be very innovative, for example, they can conduct interviews themselves and put them online on YouTube...um, they can conduct also interviews with other experts via Skype for example what you are doing, now.
DY: Yes.
RR: And this is...this is, the only thing is about how to engage and how to motivate them and that would be actually a good way I would design any kind of course. Okay. And for sure, the question would be then, what would be the difference between a social course or social sciences courses and the engineering courses.
DY: Mm-hm.

RR: And I guess that the difference would be that it can enable very critical discussions in a social sciences course because there is no right or wrong, normally, so you can discuss pretty much everything and can argument with all kinds of experts and so on. And that is actually a quality indicator when the people are saying "ah, wow, but we are not only believing to this one expert, we are not only believing to our professor because of professor but we are challenging hin or her now because we have found additional statement or interviews or articles or...which are reflecting another view.
DY: Mm-hm, yes.
RR: So that would...that would be the possibility. And in a technical course it is more about the what was happening and what was happening is may be someone occur a problem or experiment was failing so why and so. So that are the questions that engineers study. Because there is now normally right or wrong. In the engineering studies, at least, you have a certain task to do it only possibility will be that you say, okay, we are widening the task and we say,
[inaudible segment]
DY: What kind of e-Learning scenarios (Problem-solving, lecture, seminar, field-trip, task-based, web conference, discussion, virtual field trip, role-playing, etc...) do you think that social sciences prefer to use.
RR: I would say that every scenario can be used for every sciences. I mean, it 's very much depending on the use. The quality...the quality of an educational process can be, um, separated into two parts. The one is the resource, the quality of the resource, what are you basing your teaching on or what are you teaching and the other one is the use case. So, you can have for example a perfectly designed courseware but it's not fitting into well the use case, the quality can be very bad. Or, you can have, [inaudible segment], the social problems,[inaudible segment] ah okay, yes, so actually it's an interesting question because it's very difficult to answer so on the one hand we have to see what are we assessing normally in an educational process. And the original objective was to analyse the performance of an individual, okay, so, that was also the (not clear), one was writing only examens, people had not to work in a group or whatever. And this now, is changing and more and more, they are delivering, or giving those credits, those ECTS credit in Europe, for example also for group work or a general activity that can be conducted either alone or in a group. And for sure, it is also raising the question, if someone is participating in a forum, is it really the opinion of this one person or was he picking it from somewhere else. So, either from the parents may be or from the, from the neighbor, or from the internet, you know, or from other students. So what is that own performance in this relationship, so that's the first question. And, we have to see that in the future, it is not about the knowledge, and individual knowledge, individual understanding be more or not so much. But it is about, it is really about, working in a team or collaborating in a team, also, being able to collaborate in a team in a very diverse, even from all kind of countries, from all kind of nations from all around the world, are working in the future on the problems that are not existing yet. So, what I would do in such thing is, first of all, what important is to lead to a certain innovative or creative process, what is innovative and creative and to be inclusive, to include all the students. Because, there will be, in such a case, there will be aspiration occuring that some students are very inquiring a lot, they are even a little bit exhibitionists, and some others are a bit shy, may be they know exactly what to answer but they are too shy to contribute in a team. So, what to do, should one saying, they know about and they understand but they are not able to communicate, is it then possible to give them not as much points as for the others? So is it possible... and here we are entering the field of marks or with marks at all, do make sense? So, which is for sure a difficult question, I mean too difficult to answer right now. But, I'm coming back to your present questions, what problems are occuring in such forms etc... or e-Learning education's among the students, so I would say that, um, it's the role of the teacher in the end to differ and there's also why it makes sense, teacher or the tutor is very much focused on the learning solicit of individuals and the most important that s/he is able to recognize what are [inaudible segment], and individual characteristical model for each of the students and to encourage them and to give them feedback and to enable them, may be there are more focus on such a case that people are reflecting very well in their own blog that they are also sharing it with others in a forum, even when they....

DY: What do you think about the social forms of students such as individual work or team-work on e-Learning environments with regards to social sciences and technical sciences?
RR: I would not focus neither on the one nor the other I would say both are actually important. I mean you are a student because to have, to learn also collaboration is something we all need to learn and we have to learn constantly, actually. So that's why it is important that they are also transfer their contribution to the group that they are putting online. But, yes…, but it is also important that they are

[inaudible segment], that teachers able to distinguish between what is now, ….. that can be improved certain way of working or certain way to think and what is really a lack of knowledge. If there is a lack of knowledge and comprehension for sure,…I mean, he has to focus on that.
DY: My next question you already answered but I want to ask still, could you please evaluate the importance of collaboration and communication for both sciences, well, I think you already answered this question in the whole of the interview.
RR: Yes, but I can summarize it quickly,
DY: Uh-huh, okay.
RR: So in my view, so, when we are analyzing for example, the progress of a child or a youth in general, starting with being a child. So, a child as a baby, you can only receive. Okay, so, the baby is crying when there is…, the baby is hungry or thirsty, etc… and the mother has to feed the baby. The baby is becoming older as a child, may be, it will think of the mother as what can I do actually to satisfy my mother? And, there are may be some flowers grown on the way and it gathers the flowers and it brings it to the mother and it is appreciating what the mother is doing for itself. And it's also feeling its power to be beneficial somehow or to offer something by itself. And, I guess that this is what we can define as a rolling process from the ego-based baby state status to family based status of a child, to the child based status on an adolescent, you now, in particular, you are searching for your identity to a fully mature, um, human-being, it does not count so much anymore if another human-being is part of your tribe or not. But, that you are able to be beneficial to them as well as you see that you're all somehow the same or you have all the same unique potential, you're all humans. And I guess that this is the highest level it is targeting kind of values, it is, I would say, universal values so that we are developing a sense as we are all sharing the same planet and we have to be aware of that we should help each other also that for Europe it's very much important for what's happening in Africa, etc… and that we should help them if we can and that we should also take responsibility for ourselves that we, for example, not wasting too much water or whatever or polluting the environment. And this is the what is known rolling process and now I'm coming to your question, why collaboration and communication is so important because I think that when we are so in the early days, the educational system was very much focused on the own development or even I would say on the development of the ego. Okay, so, group work normally, twenty years before, normally no one was doing group work. And now it's quite widely used and I also think that it is important to use it [inaudible segment], it is additionally important to enable communication around the world. Communication as collaboration. Because, this will develop the youth attitude to a full maturity. It is not based on the child or on the own limits but really, in a general and holistic way.
DY: Um, okay, I'm skipping to the next question, if a software or an electronic environment have to be created to enable e-Learning, how would it look like for social sciences and for technical sciences? It's a creative question, um, alright; do you have an any opinion?
RR: aa, by the way I like your questions. I must say it's, it's, it's, they are quite interesting actually and inspiring.
RR: So, what new tool should be developed. I guess that, um, I mean I would just now create an idea. So I was not thinking about it, yet, but I guess that what we will enter is, what we will enter is a kind of a lab of e-portfolio. We'll all have a kind of an e-portfolio where we are analyzing our personal growth. So it's not primarily in the first step, it will be primarily, focusing on mobility aspects and employability and that we are able to whatever get our degree in Germany and work in Turkey or get our degree in Turkey and work in Germany etc, you know, so that would be the first step. But, I guess that in the future, we'll have more possibility, it is like what is already coming up as an idea, it's a personal learning environment but where we are guided through. Okay? So, in my opinion, what I would wish, so, for the future is that we'll that every one of us has a personal manager or coach. Someone who is already older and have more experience and there you can reflect upon your developments and this person gives you a feedback. I guess that would be and it doesn't matter actually if this person is in Europe or in any other part of the world. Because, I guess that the human growth process is universal. I mean we could all grow through. And when we are going now into the concrete application for social sciences, I guess that would be for sure one part, besides a lot of other things because the question would be also why is the personal development so important. Because, you are seeing the world, with I mean, we are all having hands with which we can touch something, or eyes which we can see something, but our mind is creating totally different pictures out of it. Okay? Totally, different understanding. So, means that if we are learning something in particular when it is about social sciences, and when we see, I mean people in the different centuries, they were be living all kinds of things in social sciences, okay?, I mean in the Germany, in the world war II, people were thinking totally different than nowadays. So, may be even on the same subjects. For example, how to interpret

what each of us writing and so. Now, related to your question, the personal growth related to your knowledge growth is very much important because it is explaining your understanding so, and then the, actually that would be very much important in particular for social sciences.
DY: Is it also valid for technical sciences, your answer?
RR: Yes, I also think that it is valid for technical sciences. There is one example, the development of the atomic bomb, for example, okay, so, the, the question is for a researcher is it worth to develop an atomic bomb, okay, so the question is for a researcher, is it possible, is it necessary to, or, is it good to develop the potential or to research on the potential of nuclear energy? And the second thing is it, should we create a weapon which is able to, you know, just kill millions of people at once. So, and in my opinion, for sure it matters, you know, it matters. I think that in the future if there is someone who is a very good scientist who is offered to produce a new weapon, to destroy as much people as possible, I think that such a person, should be able to deny on such development such as Einstein was doing, I think he was on a quite high level, also in the personal development level, they would say 'no, he doesn't want to do it!.' He doesn't want to do it. I mean later on, he was developing, I guess he was also playing with... developing atomic bomb with a purpose of destroying the third Reich. Well, so it's difficult actually to answer but I think that the personal reflection is very much important. And that's what I would wish, that's an e-Learning application where you can combine everything, every other e-Learning application with, you can track the results, someone is there for you, guiding you through and I think that would be really amazing and it could really be very much beneficial.
DY: Actually, like a someone who helps you for your lifelong learning.
RR: Sorry, could you repeat?
DY: Actually, you mean, someone, some guide that has for you in your life-long learning journey.
RR: Yes… but the question what is the lifelong learning is embedded into, so, what we are seeing here politicians all the time, you know, saying, 'yes, we have to improve our educational system. Why? Because, we want to be more competitive with other countries.' And I think that's only the half truth. So, it's not, it does not make us happy when we are computing against others and when we are sucking out others like we have done in the last 400 years. So, it is not really beneficial, the question is what is the overall framework in what we are embedding education into? And here I think there three levels which are important, it is the learning individual, the learning organizational and the learning in society. And, for sure, the learning organization and in society are based on the learning individual. And we see lifelong learning, as a need not only as a need because we have to but we like it, you know, we like it because it is a synonym of developing life-long. And I would just, it also brings us to the question of love you know. Because, I was just, yesterday, I was watching documentation in television, about a woman who was left by her husband, in the age of 65, and he was going away with the younger one, okay? And then, I was thinking about and she was for sure she was totally desperate and now what she is doing was to organize tours with the caravan so only, singles are participating. So, I have to think about the idea, but for sure, they did interview with her and it was quite that she is really so much disappointed of her former husband that she is so frustrated. Why? Because she was building up her life [inaudible segment], well, she was a wife always taking care with her husband to come home, and you know ironing the shirts and cooking the dinner and so on, you know, she was always there for him but he was not having a look on her personal development. She was learning something during her life, maybe she was learning how to cook or whatever or she was going to a painting course or whatever, but it was about, it was about the development of herself and I think the development process of our self, is never stopping and we need it and in particular, the politicians are telling us [inaudible segment]. Because, we are, we have very strong potential as humans, you know, to develop and I guess until the full development, most of the people are not realizing this life. So, yes but, we at least have to try, just try for it and to try to become everyday [inaudible segment] in particular values, I mean, it is so important.
DY: Do you think that e-Learning is more suitable to social sciences or technical sciences?
RR: yes, I would say, one should not; first of all, one should not say it is more suitable for this and less suitable for this. Because, it is excluding the other part. I would say that it has different potential for the different field. It is suitable for both.
DY: When you were conducting the same research study what would you ask as a main question?
RR: The purpose for both by teachers or by experts.
DY: By teachers, by lecturers in next step? If you have any?
RR: Um, I would, I would, um, what support do you need? That would be the question, I would ask. What support do you need? Because in fact normally the teachers they are even willing, they are interested and they would like to know and to do and so on, you know, I actually conduct a lot of workshops with teachers and universities and so on. There's the fact that what support they need,

because, we cannot burden all kinds of additional things to the teachers, they are anyway already doing a lot. But, it depends on in what state, if it is a professor in a university normally, they are not doing so much. But that typical teacher is already doing quite a lot. So and I would ask, what exactly do you need? And how can we help you? What do you need for policy? What do you need for research? Do you need any more evidence on-on the usefulness of e-Learning? Or, do you need any kind of good practices to inspire you? What do you need?
DY: Is there anything you would like to add? How did the interview feel for you?
RR: Yes, I think that the general approach…of analyzing a typical educational field or let's say a typical field where a lot of educational specialists have a background in social sciences, and comparing with engineering studies. I think it's an interesting approach. Because, the.., what is also I would like to say in general about my point of view as an engineer working with a lot of social sciences people around, an engineer often, doesn't like to talk so much, I mean I'm exceptional. But I think that e-Learning for me [inaudible segment], I think that the social sciences people, they rather like to talk each other and themselves, okay and for sure everything that enables them to talk and show themselves is nice, so what is nice for them. And for engineers, it is really about what is the sense, what does it really offer to the discipline. Yes, on the other hand engineers are often more curious about the technology and they are one of the first actually introducing eLearning, often so on a quite a low level because for them it is more kind of a game, and the play around with the possibilities of technology because we are, the engineers are quite amazed by technology. But,…yes,
DY: Thank you for your contribution. A short summary of the whole PhD thesis will send to you when the study is completed.
RR: Yes. Thank you, if you're once in Brussels, then you can come along. Okay, so then, enjoy your day. Bye bye.
END OF THE TAPE 2 (2 TAPE TOTAL).
END OF THE INTERVIEW.

Participant ID: Dr. Klaus Wannemacher (KW)
Interview Name: eLearning expert interviews
Short Biography: Working at HIS – Hochschul Informations System in the field of Higher Education Institutions Development and Management
Site/Location: Skype VoIP
Date of Interview: 31/03/2011
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (3 TAPE TOTAL)
(Out of topic)

DY: I will also record the interview, if it is okay for you?
KW: Yes, no problem, okay.
DY: Okay, then, (laugh) I would like to start with my first question. I don't want to take your time a lot, yeah (laugh)?
KW: Okay, that's, nice good (short laugh). Then, let's go ahead.
DY: Um, do you think that there is a difference between the eLearning utilization of technical disciplines such as engineering sciences and social sciences disciplines such as communication, management, business administration, do you think that is there a difference between both sciences?
KW: Um, my impression in- in recent years was that there is a or there have been quite a difference. Um, there is a stronger affinity by, um, people coming from, um, technical, um, study programs for instance, or um, business administration or progresses where among, um, the ones to start first with the advantages of eLearning applications and the, and this is the situation where also among engineering studies are ready to adopt those applications. But, in recent years my impression was that this, um, thing, um, changed somewhat, I mean there was, yeah, the [inaudible segment], students of medical study programs, for instance or technical programs are very early, but in this days, um, there are a lot of applications coming from, um, from humanities or from social sciences as well. So, I think, um, and nowadays, um, the digital is not strong as it used to be as these. I realized that, um, complete online study programs, of course, um, because they, um, have some cost and money especially the ones that come from the business administra-administrations lecture, um, they are not such a broad issue right now, but there are some, online study programs, which developed in, um, in the humanities as well or in law, for instance. Law is used to be the one of the fields where there were very little, there were very little application, so far.
DY: Yeah. Um,...
KW: I think these changes.
DY: Um, yes, what kind of differences, can you give me examples, for example certain examples that technical sciences uses in their studies? For example, in blended learning program.
KW: Yes, um, I think that, um, technical study programs, um, have specific eLearning applications such as, um, online laboratories, for instance. They work with lab environments and this was a specific advantage for the technical or natural science, in a technical study program. Um, while, it is completely different for the humanities, for instance. I saw those lab environments for, um, chemical study programs, in a blended learning environment, for instance, um, they could work with different chemical ingredients and have addititional, have a look at additional information provided.
KW: Yes?
DY: Yes. I hear you (short laugh).
KW: Okay. And there might be other...or there is a strange, um, [inaudible segment] effect right now.
DY: Okay. Um, um, I'm thinking it is because of me (short laugh).
KW: Yeah.
DY: Is it okay now?
KW: Yeas, there is a difference, it is better, it is better this way (short laugh).
DY: Okay.
KW: Should I go on or ?
DY: Yeah.
KW: And...,
END OF TAPE 1
START OF TAPE 2 (3 TAPE TOTAL)
[Fail to record]
KW: Specific issues so I'm not completely sure about that.

DY: Okay, um, is this differences can you see on the social sciences, too, for example, you said the technical sciences use virtual laboratories, social sciences have no chance to use virtual laboratories, what are their tools?
KW: Yes. I think in social sciences, um, the communicative, communication process is much more important in large, so, I have the impression that they are more, um, um, that they are willing to use web 2.0 applications, for instance,
DY: Yeah.
KW:...such as podcasts or wiki systems or, um, um, or similar, um, applications that foster, um, participation of students in other sense, in particular, within the learning process within the class with the profesor, for instance.
DY: Okay, you say that social sciences is better, I mean their tools, web2.0 tools, technical sciences use rather simulation and virtual laboratories.
KW: Yes.
DY: Yes.
KW: Yes.
DY: Okay.
KW: Right (short laugh).
DY: Okay, should I continue with the next question?
KW. Yes, okay.
DY: Okay, what is the most important benefit that eLearning brings to technical sciences?
KW: Um, I think that the use of, um, of applications, simulations or lab environments make teaching, um,contents more visual, opportunity to stronger, in particular...
END OF TAPE 2
START OF TAPE 3 (3 TAPE TOTAL)
[Fail to record]
KW: Hello...
DY: Because of me...
KW: Ah, okay no problem.
DY: Uh-huh. Because I have now a UMTS stick and it is not very well communication now.
KW: (laugh)
DY: Okay.
KW: Okay, no problem, um, should I start again with the last question?
DY:As you said, I think, how many course the social sciences put on Wikipedia, or...
KW: Yeah. So, I think, um, there is a new potential there for students to participate there and I will respect that at least those web 2.0 applications make it, um, make it easier to students to participate there, and not just to be someone who,um, repeat something from the profesor but to be something who produces something as well. I think that is really something that could be, could develop stronger in the years to come as soon as, well, humanities and the social science students will start to-to more widely use web 2.0 applications. I mean, I think it is a strong trend, in general. But, I think these applications can give new didactical impulses with regard to a more constructive scenario of the learning or regard to other applications, um, I think that some application use to be big trend, for instance, das lab, lab environments use to be, um, more in use in recent years. I'm not that sure that trend will, um, could play a similarly strong role than it used to play in recent years. But, um, new applications, such as gesture-based computing, might play a bigger role in the future and especially, ways of mobile learning will also, probably, will gain more importance in the future and all ways or all different kinds of the mobile learning will make, um, self-study more easy for all the different disciplines, for instance. So, of course, so, this might, this can contribute to-to make study-studying more easy for engineering and social sciences students or both of them, probably. I think about other chance..., yeah, I think that these developments might-might play a major role. There was a big discussion going on two or three years ago, on those, on game-based learning, as well, and on those role-plays, for instance,
DY: Mm-hm.
KW: But, yeah, because discussion is still going on, so , this might be, quite interesting for social sciences that will be I think and probably also for technical study programs as well, but, probably stronger focus, stronger trends that could arise within the social sciences, yes. Because, well, yeah, just similar to those, I just heard about case studies might be interesting just to, um, try out [inaudible segment]. These are somethings that come to my mind.
DY: Yeah, yeah. Okay, if you finished. I would like to ask my next question.
KW: Yes (laugh), okay.

DY: Okay, is there anything you would like to add to this interview, perhaps a notice.
KW: No, that's good (laugh).
DY: Is there any question you may think that I should have asked to you?
KW: Um, no, right now, I have no, um, no further suggestions there.
DY: How did the interview feel for you ? Was it okay or I don't know, is there something missing in the interview? Because it is a pre-test and I want to get your opinions about it?
KW: Okay, so, um, I was not that aware of that didactical aspect play such a vital role. It could have been good just to,...let the interviewees know beforehand about how, yeah, may be the general direction of the question if it will or some question of technological aspect and didactical aspect and organizational aspects. So, this could have been, could have been helpful additionally. Or, I was not practically aware of that you would focus on mainly on, yeah, engineering and social sciences programs, small hit on that could be, could be useful.
DY: Anything, more?
KW: No (laugh).
(Out of topic)
END OF TAPE 3.
END OF THE INTERVIEW.

7.2.2. Instructors from Diverse Subject-Matter Contexts

7.2.2.1. List of Participant Group II "Instructors"

Interview Partner	Field of Study	Institution
Prof. Dr. Gregor Betz	Philosophy	Karlsruher Institute for Technology
Prof. Dr. Ilona Buchem	Mediendidaktik	Visiting professor for Digital Media Studies at Beuth University of Applied Sciences
Dr. Josef Eisner	Fachdidaktik- Lehrerinnenbildung	University of Salzburg
Dr. – Ing Andre König	Informatik, KOM- Multimedia Communications Lab	Technical University of Darmstadt
Prof. Dr. Jörg Lange	Civil Engineering	Technical University of Darmstadt
Dipl. –Soz. Tanja Müller	Sociology	University of Leuphana Lüneburg
Dr. Bastian Pelka	Sozialforschungsstelle 'Social Research Unit'	Technical University of Dortmund
Prof. Dr. Ulrik Schröder	Communication Sciences Learning Technologies Research Group	RWTH Aachen
Dr. Jens Vogelgesang	Communication Sciences Interactive Media and Online Communication	University of Hohenheim
Prof. Dr. Heike Wiesner	Business Informatics	HWR Berlin

Participant ID: Jun. Prof. Dr. Gregor Betz (GB)
Interview Name: Instructor Interviews
Short Biography: University instructor in the field of Philosophy at Karlsruhe Institute of Technology
Site/Location: Skype VoIP
Date of Interview: 06/06/2012
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (1 TAPES TOTAL)
(Out of topic)

DY: Let me begin with the interview if you wish. Um..., do you agree with the record of the interview?
GB: Okay, that's fine.
DY: Okay, thank you. Um, for how many years do you have a relation with eLearning, actually?
GB: Um..., that's a good question so, we s...almost ten years.
DY: Almost ten years... (noting) mm-hm.
GB: Mm-hm.
DY: And, how many electronic courses did you thought until now?
GB: So you mean...
DY: Blended learning or...
GB: Oh...I see.
DY: Yeah.
GB: Okay, so, um...well I, that's also a rough, rough estimate...
DY: Yeah.
GB: Just, um... let me see...
DY: Approximately...
GB: Yeah. At least ten, ten to fifteen.
DY: Ten to fifteen (noting).
GB: Rather fifteen.
DY: Yeah. Okay. And how many do you have presently?
GB: You mean currently or recently?
DY: Recently, yeah...Currently. Now.
GB: No-w this semester, um, um, um, do I use argument at least in one course (thinking to self) ? Well, I didn't, I have to um, I'm employing our eLearning platform in both seminars but I'm, I'm only using my argumentation software in one of them.
DY: Mm-hm.
GB: So, it depends on yeah, let's rather say one.
DY: Okay, but you have presently two courses that you implement eLearning now?
GB: Ye-yeah, in the eLearning platform,
DY: Yes.
GB: ...I'm using the eLearning platform in both, yeah.
DY: Um, could you please share your experiences and tell me one of your eLearning courses, describe it and share your experiences with me?
GB: Mm-hm. So, I'm going to describe um, um, a courseware I did not only use the eLearning platform,
DY: Mm-hm.
GB: But, where I in addition make use of a, um, a tailored eLearning software we have written for our philosophy courses in argumentation software.
DY: Uh-huh.
GB: For argument. And, um, this allows you to, this is a, this allows you to collaboratively reconstruct complex debates. So, it's a klein ("small") server application and the students can all job, um, from different computers work on one or the same argument map and I use it [inaudible segment] seminars, I'm going to describe how I use this in um, seminar where we dealt with this Descartes Meditations.
DY: Mm-hm.
GB: Which is the classic philosophical text.
DY: Mm-hm.
GB: For each um, session a student group was supposed to prepare an argument map that was a reconstruction of a chapter from this book, from the 'meditations' and these argument maps were um, created with our eLearning software,

DY: Mm-hm.
GB:...they were previously uploaded to the server so that not only me the instructor but also all the other students could prepare for the specific session, could prepare for discussions I saw with this students group has prepared,
DY: Mm-hm.
GB: ...and so on. Now, we discussed it and afterwards the student groups revised their reconstruction and again everybody could see it and interestingly now, a-these basically all the student group while creating their own argument maps worked on one and the same debate on one or the same project on the server. So, um, these argument maps and the um, work of the student groups,
DY: Mm-hm.
GB:...needly connect, was needly connected and they um, actually build on each other and so in the course of this semester we really constructed not only several distinct maps, one...but one huge map and this allowed us to well, keep track of the entire discussion to-to connect to sessions that already six weeks ago, because we all had the argument maps still in front of us, so that was really,
DY: Mm-hm.
GB: ..a huge integrative function which the eLearning software fulfilled that specific example.
DY: Mm-hm. But this is the software that you developed actually, right?
GB: Yeah. Yes.
DY: Yes. Um, um, you mentioned the content this is a, um, 'Kant's Meditation content' you mean, in the course, what type of content, more theoretical content, of course, I think?
GB: Yes. It is a philosophical, it is a philosophical text and it's typical philosophical text and it was a seminar about the interpretation of this text.
DY: Mm-hm. Interpretation (noting). Um, um, what was your didactical idea in doing this eLearning course? I mean,
GB: Well...yeah.
DY: ...is it more constructive or?
GB: It is really more constructive and the idea is to...encourage students to identify and analyze the arguments and put them in a coherent, put them coherently and insert them in coherent context.
DY: Mm-hm.
GB: So, it's really the idea is to focus on arguments and argumentation. That's the very specific function o-of this software.
DY: Yes.
GB: So, yeah because um...one of my experience is that if it...there is a risk that in in philosophical seminars and discussions you...not only you get lost but you don't always keep track of the arguments right, yes, everybody saying something and it is not always clear whether it is an argument, examples, they are anecdotes, um stories are told, just opinions are exchanged but what really counts an argument and the basic idea behind the eLearning software is to focus on the arguments.
DY: Mm-hm. They have to be somehow organized in one, um, software you mean, that's why you developed this software. For the organization of the arguments and for the students that they can look back and see what they've constructed until now.
GB: Exactly, and that's one point and um, um, also to-to, because I mean the-the crucial point with the software is you can only enter bud arguments, you have to reconstruct the arguments otherwise, you can't use the software.
DY: Mm-hm.
GB: So, it's...so they are really, if they use the software forced to do this.
DY: Mm-hm.
GB: Um, yeah.
DY: Adding new argument, adding new arguments, yes. And, did you use...
GB: Not only...
DY: Sorry. Sorry for interrupting.
GB: Mm. Um, but just in brackets, now the quality of –of the Skype um, call is-is diminishing a little bit, sometimes it's, I don't understand you so, I will ask you back, but it's because of the...
DY: Okay, okay, no problem.
GB: Yeah. Um, now it's, you get, that's also true I mean they, the students are love to insert new arguments,
DY: Mm-hm.
GB: ...and develop their own arguments.
DY: Mm-hm.

GB: But this is only one part of the story and other even...yeah, equally important feature is that they interpret, understand and reconstruct the arguments of others. Especially, the arguments they find in the text we are reading.
DY: Mm-hm. It is collaboratively construction... and did you use, did you use other teaching and learning activities?
GB: Yes, I mean, I'm, I'm um, always and for all my seminars and um, lectures I'm using basic eLearning platforms,
DY: Mm-hm.
GB: .... so that changed, now I'm, we at Karlsruhe, we have the Ilias learning platform, and in Berlin I used Blackboard.
DY: Mm-hm.
GB: But that's just to organize the course.
DY: Yes.
GB: Except for one, for one thing I mean um, in my argumentation, I gave the special argumentation course where we had all the um, every week students were supposed to um, do a test, a multiple choice test and we had all these, we had sixteen, now it was a two so, almost thirty different mu-extensive multiple choice test in the eLearning system they were then evaluated there automatically so, the students could keep track of how their skills developed,
DY: Uh-huh.
GB:...so that's, also another way how we used the, eLearning platform.
DY: Mm-hm. Um,
GB: Do you hear me because,
DY: Yes, I can hear you very clearly but I don't know if you can hear me.
GB: Yeah, I can hear you, too. But now, the video is broken,
DY: is broken?
GB: Yeah, I, there is a, I don't see you anymore.
DY: Is it okay now?
GB: Um, it's reloading, but I mean in the end, what really matter is sound right?
DY: Yes (short sharp laugh).
GB: Yeah, but I understand you clearly we can,
DY: Okay, can we continue? Or?
GB: Yeah, of course, we can.
DY:...that we, I can also close and recall you back. If you want.
GB: No, maybe. You know may be the best thing is just that we stop video.
DY: Yeah, okay. So. Is it okay, now?
GB: Yes, yes, it's perfect now.
DY: Okay, (laugh). So, um, I want to ask if you used also web 2.0 tools, in your eLearning seminar, courses?
GB: Um, you mean, web 2.0, I see.
DY: Mm-hm.
GB: Well..., um...I don't, I mean, um, I don't, no I don't think so I mean, we not really.
DY: Mm-hm. And what did you do to enhance communication and collaboration between your students and between you and your students? Is there a spec-specific software that you use, or you do this again over the platform this argumentation software?
GB: Yeah, no, it's really good, this kind of build-in to type argumentation platform.
DY: Mm-hm.
GB: And also, the didactic concept of the seminar,
DY: Mm-hm.
GB: Because, I-I want students the work in small groups.
DY: Mm-hm.
GB: On a debate.
DY: Mm-hm.
GB: And so they are forced to collaborate there.
DY: Yeah.
GB: So there is no, no, no special additional software. Yes.
DY: The students are working, I think generally in groups. Right?
GB: Yeah, besides, besides please, depending on the overall size of the course. At sometimes, I, there are, two students working together in group, sometimes we have five students.

DY: Mm-hm. And, how did you evaluated the success or failure of your students? On this argumentation software, what is your criteria in evaluating their success or failure?
GB: Mm-hm. Yeah, wait a sec...um, so, I think that two most important things are the discussion of um...the reconstructed argument maps in the seminar session.
DY: Mm-hm.
GB: So, they give a presentation, they present the results, they have created with the eLearning software in the seminar and after the presentation we discuss it and that's the first evaluation and they are also, supposed to, make use of their reconstruction in the written essays. Then, I read the essays also and there are also, see whether it's well done or not, it's so, but besides,
DY: Mm-hm.
GB:...there is no, like quantitative assessment or evaluation of this eLearning tool.
DY: Um, what kind of benefits did you notice while instructing with eLearning? Or are there any benefits that you notice?
GB: Yeah. I mean really that...the idea...the basic idea works out. I mean there is a, there is a focus on the arguments, um...now that's a very specific, that relates specifically to our tool or to our software.
DY: Mm-hm.
GB: You can also connect more generally on the eLearning platforms.
DY: How you wish.
GB: But um, first of all concerning our argumentation software well really, the students focus on the argument, and also they are, when they use the software to prepare presentations, they are um...in a better position to give a coherent picture of a complex argumentation. So, um...I really see huge benefits that's why I'm still using it a lot in my seminars. Concerning general eLearning platforms, I think the, it's really; I'm using them really for convenience. Yeah, it's the organize the course, to communicate with the students to make papers or scans of-of text we are going to discuss available. That's why I'm using eLearning platforms like Moodle or Ilias, its but that's really um, it makes communication and organization of the course much more convenient.
DY: Okay, what kind of challenges did you notice while instructing with eLearning?
GB: Um..., well that's an interesting question, challenges I mean, you mean more technical or didac-didactic challenges?
DY: It can be bought; it can also be organizational challenges.
GB: I see.
DY: Any challenge that comes to your mind.
GB: Okay...um..., in the first well that was so when I remember, the beginning ten years or so ago, I- I recall technical problems because of different software platforms. They...the tools were not always compatible, but this has changed, so really I don't see it, I don't see technical problems any more, I, from my experience, this is working very fine, the students are able to work with the different tools they are really proficient in using the computer and that's really really, that's really working well, and from a didactic point, it's...well, I... I don't see huge chall-challenges in this sense that there are major obstacles to work on.
DY: Mm-hm.
GB: I rather see, opportu- challenges in terms of next steps or future opportunities that are not yet, exploited.
DY: Mm-hm.
GB: And um...well one thing is that...that's also very specific now, to-to my...application scenario,
DY: Mm-hm.
GB:...or um, I would like to see um...this software used more widely. It is , It's really just a few in Germany there, in this institute there are very...people who are using...I think students might profit from making use of it more generally in other courses as well.
DY: Yes.
GB: So.
DY: Because of from my interviews because in this research um, project, I did two-fold interviews, one is with eLearning experts and now with the lecturers. But eLearning experts has also mentioned that social sciences needs some tools that they can discuss, they can argument, they can um, talk and communicate with each other and collaborate on a same environment. I think it would be a nice tool for social sciences in general,
GB: Yeah.
DY: ...to use as an eLearning platform.

GB: Yeah. So, not not, I don't think it is an entire platform but it is a, it is a may be a suitable um, supplement to an eLearning platform for very specific purpose, um...yeah, qualitative argumentation, qualitative discourse or debate about a certain issue.
DY: Mm-hm. Do you need any support while instructing with eLearning or while, instructing with your own software or?
GB: No, no.
DY: Okay, um, and could you please evaluate eLearning in your own scientific field, for example, how are the attitudes of other lecturer towards eLearning and how eLearning is used generally in your scientific field?
GB: I think um, really I tend to say...most...most...of my colleagues are using eLearning platforms that are provided by the university.
DY: Mm-hm.
GB: For, in order to organize their seminars and their courses, to have an e-mail list of all the students who attend the seminar to, um, upload documents and so on, so that's very widely used.
DY: Mm-hm.
GB: But beyond...this organizational use, it's hardly employed at all.
DY: Mm.
GB: So, I don't see that, like multiple choice tests, also... I used, I don't see that other eLearning tools are...are used. So that's my...view, that's my perception.
DY: Yes. Do you, do you mean that um, is it an obligatory action for the lecturers to use eLearning platforms...
GB: No.
DY:...which is pushed by the university or?
GB: No, no, it is not pushed, it's...but um...the university so the 'Rechenzentrum',
DY: Mm-hm.
GB:...um, they provide this...very, typically a bad platform, all the courses are already included there so that's, then the lecturers are free to use this tool or not for organizational purposes, also it's so convenient and easy to use, they really do it, most of them do it. But only for...for organizational purposes,
DY: Mm-hm.
GB: ...not, yeah...not very yeah I mean they are not without really...um, specific concept, as I said no multiple choice tests no, online, there are, I mean no online, seminars, no on- I would even say no, online discussion also, it' it's just, just replacing, the um, th-formally we always had this blanksheets which we circulated in our seminars to um, establish a list of students who attend.
DY: Yes, yes.
GB: So, that's now superfluent because we have eLearning platform, that's how they, most of my colleagues use it.
DY: Uh-huh.
GB: That's all.
DY: Like a document sharing function a little bit.
GB: Yeah.
DY: And if a software or an electronic environment have to be created just to enable eLearning in your own scientific field, how would it look like what kind of features does it have? You already established a software but if you have to establish a full platform for eLearning in your scientific field, what kind of features should it have?
GB: Mm...ah...well, yeah, you...as you said I mean, um..., I think it would be nice to...um, it's not so easy...well, I think one-one thing is really to- to have this...argument mapping or reconstruction of arguments included in or it should be compatible,
DY: Mm-hm.
GB: ...with this. Otherwise, I think the features are already there we don't need further features, I mean you can do multiple choice tests, there are um...in the platforms I know like Blackboard, Ilias, you have the opportunity to chat, you have the opportunity to have a forum on different topics.
DY: Mm-hm.
GB: You can exchange...um, the students can upload their papers, um, they can upload the comments to paper of other students...um, I think that's what we, that's what we need.
DY: Mm-hm.
GB: So, I don't..., nothing else comes to my mind now. It's really, it's really not so much a technical problem, I don't see a technical gap. Um, it's rather a didactic-didactic point. Um, the current courses

in seminars are not conceived in any way that makes more use or that makes further use of eLearning.
DY: Okay. Is there...
GB: One more question is also, I think in one sense I'm a bit critical, I don't see that eLearning can make the seminars and courses superfluent, I think it's important really to talk to each other and to discuss about a text to see what, so, I don't see that eLern-eLearning can fully replace the courses, what you could do more, more extensively is to better prepare courses, especially if you have a workshop which is a course, or a block seminar where you don't have one session in each week but when you have ten session in two consecutive days also. And, in order to prepare such a session, you can make use of eLearning in a very good way because you can, start the discussion even before the actual workshop, workshop has started and so.
DY: Yeah. And, is there anything you would like to add to this interview because I'm finished with my questions.
GB: Um...
DY: Or any question you think that I should have asked in this interview?
GB: Well, may be one thing that might be interesting for you, I think what about the students may be you are interviewing the students as well but my perception of the students attitudes is that concerning eLearning, I see they like it. Also, I mean now with the communication being much more convenient, they receive regularly e-mail from me, they receive well new things are uploaded,
DY: Mm-hm.
GB:...it's, it really keeps, I think the seminar together.
DY: Yes.
GB: So...mm.
DY: I did not interviewed the students, but from the literature I read, the students are overall, um, fine with the eLearning platforms and eLearning use by the lecturers and now I see in my interviews that from other lecturers the students are demanding form their lecturers to use eLearning, recently.
GB: Mm...
DY: Yes. Um, they want to use, because, as we know, they are also the digital natives now, the coming student group and they want to get their lectures somehow with the digital platforms because of their I mean behavioral change I think.
GB: Yeah, yeah...
DY: Yeah, yes.
GB: Yeah, exactly. This is exactly true.
DY: Yeah. How did the interview feel for you generally?
GB: Fine, really it was interesting, I hope it was useful for you?
DY: Yes, of course, because um, I didn't see from any social scientist that they develop a software only, just for their use,
GB: Yeah.
DY:...and it was the first example of me, and I'm very happy with this, thank you a lot.
GB: Okay, no-no problem, if you have any further questions, in the course of your PhD project,
DY: Mm-hm.
GB:...don't-don't hesitate to contact me.
DY: Thank you very much.
GB: And once it's finished, you can leave a note or....
DY: Yes, I will a short summary for all the lecturers that I interview, I will send them to you. And if you are also interested I can send the whole PhD.
-Out of topic-
END OF TAPE 1(1 TAPE TOTAL)..
END OF THE INTERVIEW.

Participant ID: Prof. Dr. Ilona Buchem (IB)
Interview Name: Instructor Interviews
Short Biography: Visiting professor at Beuth University of Applied Sciences
VFH – eEducation program
Science: Digital Media and Society – Education Sciences
Site/Location: Skype VoIP
Date of Interview: 26/03/2012
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (1 TAPE TOTAL)
(Out of topic)

DY: If you want I can shortly introduce myself to you, my name is Damla Yıldırım, I'm a Phd student at TU ılmenau and I'm now writing my thesis about this scientific field differences with regards to eLearning. How other sciences, how diverse sciences are using eLearning within their context and in this regard I'm conducting, I have conducted some expert interviews with eLearning experts and I asked them if they see any difference between the engineering sciences practices of eLearning and social sciences practices of eLearning. And, now I'm conducting some interviews with the lecturers who are already using some eLEarning environments within their courses.
IB: Mm-hm.
DY: And, in this regard, um, I want to interview with you and I will be happy if you also shortly introduce yourself to me.
IB: Okay.
DY: Okay.
IB: Great, um, short, um, my name is Iliona Buchem, and ou know I work in Berlin at the University of Beuth Applied Sciences. This is a technical unviersity,
DY: Mm-hm.
IB:...where, um, most students study engineering and archietecture but also, um, economics, and computer science, um, but most of our courses are, um, engi-just oriented, um, technology oriented I would say.
DY: Hm, mm-hm.
IB: Um, I, um, actually, I use to work as a researcher, um, at Beuth University before. And I have just become a visiting professor in this semester.
DY: Mm-hm.
IB: And, the area I teach is, called digital media studies which is a field at the intersection and/of, um, um, sociology and technology and um, educational sciences.
DY: Mm-hm. Okay.
IB: Um, and I have several courses that um, where I integrate technology which you could probably call blended learning courses, with,
DY: Mm-hm.
IB: With some elements of eLearning.
DY: Uh-huh.
IB: And, I also teach courses at Beuth, um, um, Beuth is a member in the assosciation of virtual universities of applied sciences.
DY: Mm-hm.
IB: And...and this again quite often so called 'online campus',
DY: Mm-hm.
IB: ...which offers online courses to working professionals that for example, want to do their Bachelor or Master degree.
DY: Mm-hm.
IB: And, um, in this field, I teach a course which is completely an online course, um, or I would say to 95% an online course with some face-to-face meetings.
DY: Yes.
IB: Um, for meetings [inaudible segment] to be exact. And this course is on 'e-bussiness management' with focus on social media.
DY: Uh-huh.
IB: So, um, I have been, I have just seen your questions that you sent to me.

DY: Yes.
IB: And, I know, you would like to make me describe one course.
DY: Yes.
IB: And, that's why, I would like to ask you which is, which course would be interesting to you, I could choose one course, um, is more um, blended learning one or the one that this, that has um, a great portion of of online learning,
DY: Uh-huh.
IB:...the one that I teach at the university, in the virtual university?
DY: Yes, um, I think let's choose the blended learning one, because generally the lecturers are using the blended learning environments when we say eLearning and but if you think the 95% online course is better in the instruction, you can also explain that or both, maybe (short laugh).
IB: Yeah. What, what is interesting for you? What are you looking for?
DY: Um, actually,
IB: What could be more interesting?
DY: I'm looking for what kind of applications are the lecturers are doing, are they, are the lecturers are satisfied what are they doing, um, what kind of support do they need and um,
IB: Mm-hm.
DY: In general, in a main framework, are they satisfied with eLearning, actually, main question is this? What do they need,
IB: Okay.
DY: What can be changed? Etc...
IB: Okay.
DY: Mm-hm.
IB: Okay, let me, may be I can start with this online course that is 95% online and then, if you want I can describe the other course as well.
DY: If you could, I'll be glad.
IB: Yeah.
DY: Mm-hm. Okay, can I start with my questions?
IB: Let me, I just need to open it.
DY: Okay.
IB: Just one second. Um...where do I have it, um...okay (talking to self). I got it.
DY: Okay.
IB: So, um..., should I start with describing the course?
DY: Um, I would like to ask for how many years do you have a relation with eLearning, actually, first of all?
IB: Um..., I would say 15 years about 15 years.
DY: And how many electronic courses did you taught until now? Do you have anumber approximately?
IB: And again, are you looking only for um, purely online courses,
DY: No.
IB:...or mixture like blended learning?
DY: No. It is not, it is not a criteria for me all kind of eLearning courses.
IB: um....and you're looking for the type of course, not the amount because it...I teach for example, modules that I have taught for two semesters, some modules I have taught were um, for or five semesters,
DY: Yeah...
IB: So,
[overlapping speech]
DY: how many e-courses do you taught until now, yeah, is not important full- online or blended, somehow?
IB: Okay, okay. Um...one, two, three, four, five, six, six courses.
DY: Six courses and do you have any courses presently that you're teaching?
IB: Yes.
DY: Okay.
IB: Yeah.
DY: How many are there?
IB: Um..., one, two, three, four, five.
DY: Five. Okay, thank you very much.
IB: Noooo, sorry, sorry

DY: Yeah...
IB: Okay, I forgot a course that I teach, that's also an eLearning course.
DY: Uh-huh.
IB: Um...in general, I have seven courses and this semester I teach six.
DY: Okay. Thank you. And, could you now, please share your experiences and describe your eLearning course to me?
IB: Okay, so, this course that I teach at the virtual university of the Beuth university.
DY: Uh-huh.
IB: This is a course on e-business management with focus on social media.
DY: Mm-hm.
IB: Um, the content that I use in this course is um, um, they are, um, eLearning modules that were developed, um, by professors from other universities and that are used for, for, um, this type of course, of the course, at different universities that are partners in this association of virtual universities.
DY: Mm-hm.
IB: So, this is the acqusition of virtual universities where the number of courses at different universities around Germany, and they all use the same learning modules.
DY: Uh-huh.
IB: And this module is not developed by me but I asked to profesors some years ago.
DY: Mm-hm.
IB: And. This module are updated every year or every semester. Um...
DY: Is this a more theoretical or practical content used there?
IB: Um, um...it's both, it's both.
DY: Both.
IB: It is the theory that needs to be applied in the-in the last part of the course.
DY: Uh-huh. Okay.
IB: What was your aim objective in the eLearning, eLearning course? (reading from the list of questions). Okay, so the aim and objective is to um, um, the students should, um, develop, um, some knowledge in understanding of e-business, um, as the field of e-business modules, strategies,
DY: Mm-hm.
IB:...tools that can be used of the current trends and then, apply this knowledge in um, in projects that are done in small groups of students,
DY: Mm-hm.
IB: ...where they work on developing an a e-business strategy.
DY: Mm-hm.
IB: And this projects usually refer to the um..., to the um..., to some real problems that for example, the students bring from the companies where they work, um, so they develop strategies that can be really implemented in their companies or in their departments where they are employed.
DY: Was it a...?
IB: [inaudible segment], these cautions are, yeah...
DY: Sorry, sorry, was it more a project based course?
IB: Yes, yes, it's partially project based, mm-hm.
DY: Mm-hm, okay. Um...
IB: Um...I have usually in this course, I usually have 25 to 30 students.
DY: Uh-huh. Okay. And what was your didactical idea, um, in the, in this, in doing this course, for example, was it more cognitive, constructivist or social learning?
IB: Okay, so as far as the, as the structure of the course itself and the eLearning modules that you know, that all of the lecturers get, they are more cognitive oriented,
DY: Mm-hm.
IB: But I, myself work based on social constructivism, social learning principles, so I'm trying to embed, cognitive modules into a social constructivist environment and so, follow this um..., more constructivist approach. But the modules themselves are very cognitive oriented.
DY: Uh-huh. Okay. What kind of teaching and learning activities did you used, I asked here but you said it is more a project based learning environment, right?
IB: Yes, yes...
DY: And how was the sharing function of this environment? Did the students should work in groups or individually or both? Ho was the um, interactions are formulated in this course?

IB: Yeah. So, the course starts with self-study with first module.
DY: Mm-hm.
IB: Each student works alone, with read the module and does some exercises. I said the modules are very cognitive oriented, you have some multiple choice questions at the end.
DY: Uh-huh.
IB: And, so on, so, they need to answer and so this is, this is quite self-study. And then, we have after the first module , we have a meeting in a web conference system, we use 'Adobe Connect' with this.
DY: Mm-hm.
IB: And students has tasks to prepare some very short, um, presentations on um..., specific problems so they have to, so I pick few exercises from the module,
DY: Mm-hm.
IB: ....and, each student get exer- um, get a specific problem that they have to work on they have to develop solution to this problem and present it in the web conference, those are very short 5 or 10 minutes presentations.
DY: Mm-hm.
IB: And then, the same, the same pattern is repeated witm module 2, again they have the self study, they have a web conference,
DY: Mm-hm.
IB:...the same thing happens, then, repeated again with module 3 and those are the three core modules where they learn with, they get the input, um, the content so to say,
DY: Mm-hm.
IB:...and um, and the fourth module, they work on projects, they, um, work on small groups they, they, oh, um, choose an um, um..., scenario and problem they want to address and they use the modules, the tools that they learned to produce a, um, um, a, an e-business strategy, however, they forgot in this part one, two, three, where they have this content input.
DY: Mm-hm.
IB: Um..., so I use group blog in Wordpress.
DY: Uh-huh, blog.
IB: Where they, for each student has to post um, one article per module.
DY: Mm-hm.
IB: So, for example, they read module 1 and they have to choose the topic that they are interested in.
DY: Yeah.
IB: Then, they write a blog post about it in the group blog.
DY: Mm-hm.
IB: And this, um, um, this blog post should not be, you know, copying the text from the blog, but um, reading about a topic that they choose and um, and, extending the view, things, preparing some sort of own reflection, own assessment of a particular, um, subject that they, um, that they choose.
DY: Yes.
IB: And, yeah.
DY: Um, what kind of tools did you prefer to use, you already mentioned some of the like Adobe Connect,
IB: Yeah.
DY: ...and group blog and are there any other tools that you prefer to use in this eLearning courses, or, not?
IB: Yeah, so all these courses in the virtual university they run on Moodle.
DY: Mm-hm.
IB: The modules are, um, are, um…, integrated into Moodle. In Moodle, we also use forums to exchange ideas,
DY: Mm-hm.
IB:…and um…, to share some news and so on, so on. So, Moodle is a platform and we use Adobe Connect for web conferences.
DY: Mm-hm.
IB: Um, I use group, um, group blog, um, in Wordpress.
DY: Mm-hm.
IB: Um, and I also, this semester, I also used Twitter um, to, um, to share some interesting links and um, yeah, interesting links to the current topics and knowledge.

DY: We can say that you already also using the web 2.0 tools in your eLearning environments?
IB: Yeah.
DY: Mm-hm. And what did you do to enhance communication and collaboration, I would like to ask but I already got this answer, if you want to add something or here, you can also add?
IB: Um, so, collaboration, I was trying for example to enhance it specially in the groupwork blog.
DY: Mm-hm.
IB: Um, part of the task is to write a group blog but also comment on it at- at least two group posts, posted by the colleagues.
DY: Mm-hm.
IB: And, it really helps, so they need, they have to read what the others, um, writing the blog and they have to choos two blog posts that are interesting or whatever when they contribute, so this is also way of enhancing collaboration and communication or enhanced specially not only Moodle in forums, but also, um, by the means of twitter, I integrated the twitter stream to Moodle,
DY: Mm-hm.
IB: ...so that everyone, when they logged in, can also see, um, the twitter stream.
DY: Mm-hm.
IB: And, um, answer or respond to tweets.
DY: Okay, and how did you evaluated the success or failure of your students in your eLearning course? What was your criteria in evaluating their success or failure?
IB: Um..., I didn't do the, um,
DY: Yeah.
IB: ...task or somebody else do the evaluation of success or quality of the, of the content that they produce in groups.
DY: Mm-hm.
IB: And, in a part of the groupwork, in the, in the last part of course and I have different criter- criteria that have to be considered, um, for example, they have to, um, um, apply theory- theoretical modules, apply research results in the construction of theirown e-business management strategy.
DY: Mm-hm.

IB: And, there was a, um, there was, um..., there were some parts of the concept that they have to-to write those, you know, there were some criteria that the amount of the student before they knew what quality (short laugh),
DY: (short laugh).
IB:...meant. The success was um, was evaluated based on the final outcome of the groupwork.
DY: Mm-hm. Okay, um, shall we, um, take the other course and analyze it also in this framework or you don't want to tell that or if you want to add that course also I would be glad, blended learning course.
IB: Um, another course. Okay, if you want...
DY: If you have time of course.
IB: Yeah, we can do it quickly.
DY: Okay. Um..., okay so another course that I do is, um, actually it's a regular course at the university.
DY: Mm-hm.
IB: Um, um, the title is web 2.0 and the society.
DY: Mm-hm.
IB: The content in this course is, um, is based on the current, um, in principle on the use of the blog articles, on the current events that um, that are helping in particular fields, particular fields like um, um, enterprise, um, politics, journalism, um, economy..., so, I pick different news because it's the cour-I'm trying to um, um, pick up this, the current, the current, developments and...and, [inaudible segment], how social media changes the society in these different fields.
DY: Mm-hm.
IB: The aim of this course is for the students to understand, um, how social media effects our lives.
DY: Mm-hm.
IB: And, um, and extend their perspective on social media.
DY: Mm-hm.

IB: And also, to get to know the current web 2.0 tools and to practically work with this tools to build a own opinion on the different tools and behavior to apply them for different goals in different contexts.
DY: Mm-hm.
IB: Um, the didactical idea is social learning, social constructivism.
DY: Mm-hm.
IB: Um, the diferent teaching, learning activities are um, in this course, I worked with e-portfolios, so students, um, have to document their learning and reflect their learning from the beginning to the end, DY: Mm-hm.
IB:...of the course, so they start with describing their learning goals at the beginning and they have to write, um, for example, they have to write a micro article or a blog article,
DY: Mm-hm.
IB:...about particular topic, they have to um, deve-produce something with social media like a story with 'storify' or a 'podcast' with some software that they choose, or yeah, so different, different products that can so, different tasks and they document these tasks within the semester.
DY: Mm-hm.
IB: And, they reflect on them. And, um, and the end, um, I, I evaluate the, um, the whole learning process and the artefacts that they document in the production that they do. So, at the very end, there is also a, a final reflection where they reflect on what they learned in the course, reflect on how their opinion changed about social media or what you know, um, their, how their perception changed and so on.
DY: Mm-hm.
IB: And, in this course, I used many many different tools.
DY: Mm-hm.
IB: Because we try tools out but the basic tools is the blog,
DY: Mm-hm.
IB: Um..., this is the blog that I,um, [inaudible segment], blog where I document, um, um..., from my perspective where I document the-the course.
DY: Mm-hm.
IB: The students runs develop some e-portfolio with the, with the social media tools they choose, tools can also be a blog or wiki, or something else.
DY: Mm-hm.
IB: Um, Netvibes or some other mash-up, um, software, we also use wikis, twitter and very very different tools that we test.
DY: Yes.
IB: And, social bookmarks, so really everything (laugh).
DY: (laugh). So you can say that it- the tools of the course were web 2.0 tools, possible web 2.0 tools.
IB: Yeah.
DY: Yeah.
IB: Yeah, yeah, and I also use Adobe Connect again because I also invite guest lecturers, guest lecturers. Um, so, um, I don't so, guest lecturers don't come to the university but they, um, they have short presentations in the Adobe Connect. So, this is, this tool.
DY: Mm-hm.
IB: Communication and collaboration is in the hands of all level (laugh),
DY: (laugh)
IB: All different social media, a lot of communication and collaboration going on.
DY: Mm-hm.
IB: Students work both individually on their e-portfolio and in groups.
DY: Mm-hm.
IB: They develop some products in groups, for instance stories, some video casts,
DY: Mm-hm.
IB:...and so on. Um, how do I evaluate the...I evaluate like I said, this is, I evaluated the success on the basis of the e-portfolio.
DY: Mm-hm.
IB: Um, so, I can see variety of tools students use, I can see base on the reflection, how their perspectives change,
DY: Mm-hm.

IB:...how the debate reflect on the topics that we discuss. And , um, in general, also on the creativity that they bring into the creation of e-portfolios.
DY: Mm-hm. Okay, thank you very much that you also tell this course, now, let's look at overall. What kind of benefits did you notice while instructing with eLearning?
IB: So, in the first course, the benefit, the-the-the online course, the benefit to the students of course is, those are students that work,
DY: Mm-hm.
IB:...this simply is the flexibility that they wouldn't have because those people work during the day and they have learned with the modules in the evenings , at the weekends, they can meet me in Adobe Connect.
DY: Mm-hm.
IB: In the evenings they don't need to track, also. We have face-to-face meetings only once a month.
DY: Mm-hm.
IB: So, this gives them a great flexibility, um, also, gives me the flexibility so I can, I can, um, plan this course between my other, um, between my other activities during the.
DY: Mm-hm.
IB: Um, um...the other course is like the one social media and society, the other course,
DY: Mm-hm.
IB:...is, I see the benefit, um, in the change of thinking about learning,
DY: Mm-hm.
IB:...most of all because most of the students come with um, with a very traditional perspection of learning, you know,they are always suprised, 'why isn't there, you know, someone standing in front of us and um, telling about the content.
DY: Mm-hm.
IB:...um, so they have to figure out things self and they have to find them out, discuss a lot and, um, and elaborate a lot, they are very engaged, and motivated to do this, epecially the work with e-portfolios, for example, where motivating for them because the can ever choose what they want, they can express themselves, design it , you know, to express themselves. So, um, I think it is , yeah, um, motivational, very strong motivational factor.
DY: Mm-hm. And is there any...(break)
IB: And to me also...,
DY: Sorry!
IB: Yeah, (laugh), benefit to me from the-the teacher perspective, so to say is of course, this is very dynamic very live, it's never boring, it's, you know, it just develops from some class to class,
DY: Mm-hm.
IB:...and um, um, it is very interesting also to see, you know how, how students master this, and, um, um, little like an experiment , always.
DY: (laugh). Okay, shall I continue with the next question?
IB: Yeah.
DY: Okay, what kind of challenges did you notice while instructing with eLearning? Or is there any challenge that you've noticed?
IB: I was just thinking, the first course, the challenge is to understand what people are there that you teach and again, and also for the student understand what person the teacher is.
DY: Mm.
IB: And, um, sometimes it is very tricky because you don't, it-it's hard to get the impression of the people even in the Adobe Connect, even you see them, it is completely different when you meet them face-to-face and you know, what they think, how they you know, it-it's just a different, um, I think a different and impression that you got. And, I think, it works for both sides. And, um, well, the other courses, um, the challenge is, are the, yes, the, um, yes, the proper time investment that you do in the beginning when you design these courses, and if you want to include always new tools and up-to-date materials, then, it's always pretty time consuming,
DY: Mm-hm.
IB:...to do this, and um, I think also if you use social media you can never say you will use the same thing in two years.
DY: Yes.
IB: So, you always have to be up-to-date and this is changing very quickly so it takes, it takes always time to yeah to prepare everything.

DY: Mm-hm. And what kind of differences did you notice? You already mentioned these differences but if you want you can skip the fourth question.
IB: Mm-hm.
DY: Um, shall I, um, continue with the fifth question?
IB: Yeah.
DY: Do you need any support while instructing with eLearning?
IB: Um..., um..., support in terms of what I wish for instance to have, this semester, but I don't know if this work, would better have two students who would support me in managing some communication, collaboration, um, in , um, sometimes in responsing to different things and um, for example, sharing materials and so on, so, I think support in terms of people that supports you,
DY: Mm-hm.
IB: ...would be nice to have and in terms of um..., of the organization, um..., no not really. I think with the virtual universities I guess the sufficient support, there is someone who manages the courses, who manages the um, the administration for example, the, um, um, the, oh, the word in english (short laugh), the, um, oh, the participant administration you know,
DY: Mm-hm.
IB: ...so I don't have to do this, there is some organization support,
DY: Yeah.
IB: ...and um, and in the other courses, I use tools that are freely available on the net, so I don't , I wouldn't need any support here. Um...
DY: You mean you need no technical support, also, right?
IB: Yeah. No, I don't need technical support, yes, of course, because I plan for this semester, I wanted to test um, um, some game based elements in learning.
DY: Mm-hm.
IB: And, I wanted to actually, um, yeah, because my faculty didn't have enough money this semester, I hope to get it in sommer sem- in winter semester,
DY: Mm-hm.
IB: I would like to um, um..., technical support,
DY: Uh-huh.
IB: Um, on this, maybe a student again, computer science student who will support me in programming solutions.
DY: Mm-hm.
IB: Um.., for example, for points and tracking, and tracking the, um, um, the learning process and something like that, so but, yeah, this is also a, you know, just nice to have (laugh).
DY: (laugh).
IB: Just to try, if you want to try your idea that are beyond,
DY: Yeah.
IB:...um, something that you can even get from the freely available sources and you need someone who can program something for you, you want, then, it would be nice, yeah.
DY: Maybe it's like this, when the, if you use environments, eLearning environments so sophisticated, much more sophisticated, then you may need some technical support, you mean, right?
IB: Yeah. Yeah. Yeah.
DY: Uh-huh. Okay. Um...
IB: Something beyond, the probably beyond the painting functionalities that even, that you can use yourself, yeah.
DY: Mm-hm. And could you please shortly evaluate eLearning use in your scientific discipline?
IB: Um....,
DY: Scientific field?
IB: eLearning is used, yes is used very widely I would say because um, the digital media studies like I did that in the intersection of sociology and, and, and, technologies, technological studies and,
DY: Mm-hm.
IB:...and, and, um, the pedagogy.
DY: Mm-hm.
IB: So, I think especially, pedagogy, I, myself am, um, I studied, um, pedagogy so, it's used, um, yeah more and more. And there is a strong community that uses eLearning, technology enhanced learning so, um, people experiment thing, different things and um, um..., yeah, or are you looking for that, or?

DY: Yes, I'm looking for that.
IB: Yeah. Okay.
DY: Mm-hm.
IB: And can you guess the opinions of other lecturers towards eLearning, in your scientific field, of course?
IB: Um....
DY: How are the attitudes are changing?
IB: Yeah, um..., it's different, um, there is a different um, different directions, there is one direction that um, that ones to embrace the new technologies.
DY: Mm-hm.
IB: And, I see, um, you know, maybe, take a more explorative approach, how this can be used and, or willing to risk,
DY: Mm-hm.
IB:...and um, just try and if I wait and the other direction is um..., more oriented towards, first having some results and asking themselves the question, why would we need to do this? That would really bring any improvements and um, waiting for the results before they try anything.
DY: Mm.
IB: And of course there are always some people that, um, that are not very technology,
DY: Mm-hm.
IB: ...um...um, savy and they find it difficult to um, to work with social media for example, because they don't use themselves and they don't, they are missing ideas, they are, what can we say, maybe time as well to, yeah, they are not interested much in using this for um, for learning.
DY: Yeah.
IB: So, it is different, very different.
DY: And, if a software or an electronic environment have to be created just to enable eLearning, in your own scientific field, how would it look like? Do you have any idea about this?
IB: Mm...yeah, they are very, I'm very much in support of the so called personal learning environments
DY: Mm-hm.
IB: ...which are based on the constructivist idea where it is important to be able to choose the different tools ressources, connect to different people and aggregate them, um, individually, so I think um, um, yeah, the environment would be um, some sort of integration, a better integration, because what we have, of course, we have an integration of, oh , I forgot the mention the e-portfolios within another courses we have.
DY: Mm-hm.
IB: Um..., it is Mahara software, it runs with Moodle.
DY: Yeah.
IB: So we have this integration, and Adobe Connect.
DY: Mm-hm.
IB: But the integration of social media, I don't know even if you actually, yeah, I mean if you, if you know how to do it technically, you can, you can do, I mean, you can integrate a twitter stream in Moodle.
DY: Yes.
IB: But, I would, I would you..., need some more openness to other systems,
DY: Mm-hm.
IB: ...so that you can combine the different things and maybe have a dashboard,
DY: Mm-hm.
IB:...with you can manage different resources with different tools use.
DY: Mm-hm. Okay, actually it is the end of my interview but I want to ask you if there anything you would like to add to this interview, about my questions?
IB: Um, yes I would like to read your Phd or maybe some pre-results of the other interviews...
DY: As soon as I'll be finished with my Phd, I will send you an abstract and um, other things about my Phd via e-mail or skype. I would be glad to send it to you. And, if you read and comment me, on the, on my PhD thesis, I will also be glad. I couldn't talk (laugh). Is there any question that you think I should have asked?
IB: Um, no, I thought the questions were very interesting and um, um, it was, I think the way how you structured the questions and the sequence of the questions,
DY: Mm-hm.

IB: ...was, was really good and they were open end questions, prescribing much, really follow my thoughts and,
DY: Thank you very much.
IB: Um, um, yeah how it is applied to the examples, no, it was really good.
DY: Mm-hm. And I don't ask the last question because you already answered it.
IB: Oh yeah.
DY: And, I want to ask you a question, too before we start to the interview, I forgot to ask to you about the record of the interview, do you allow me,
IB: Mm-hm.
DY:... to record the interview because I already recorded but if you say I don't allow to publish the results of this recording, I won't do it.
IB: No, of course, you can publish the results.
DY: Okay.
(Out of topic)
END OF TAPE 1. 1 TAPE TOTAL.
END OF THE INTERVIEW.

Participant ID: Dr. Mag. Josef Eisner
Interview Name: Instructor Interviews
Short Biography: Personal and organizational development consultant at the University of Salzburg instructing about 'Affective Design in Instruction'.
Site/Location: Skype VoIP
Date of Interview: 26/03/2012
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (1 TAPE TOTAL)
(Out of topic)

DY: Before we start, can I record this interview?
JE: Oh, yes. Oh, yes, it's okay.
DY: Okay, thank you very much.
JE: Okay.
DY: Okay. For how many years do you have a relation with eLearning?
JE: Um..., about, um, eight years.
DY: About eight years...
JE: Yes, and for, um, three years or no, more five years as teacher.
DY: Five years as teacher...okay, how many electronic courses did you thought until now? Do you remember the number?
JE: Excuse me?
DY: How many electronic courses did you thought until now?
JE: Oh, um...
DY: eCourses, yes, with eLearning.
JE: I think ten, twelve courses, about.
DY: And, do you have presently an eLearning course?
JE: Yes, for, um, I have differing courses, um, on my private, um...um...platform.
DY: Mm-hm.
JE: And, also I have two courses on the platform, um, on the, um, on the university, um, the Blackboard platform is used, there.
DY: Okay. And, could you please share your experiences and describe a little bit your eLearning course, to me? For example, what type of content, did you use?
JE: Yes.
DY: ...in your eLearning course, objectives, etc...
JE: I used the tool, um, in the biggest part for discussion and forums.
DY: Mm-hm.
JE: Yes, um, we exchanged their, um, um, documents...
DY: Mm-hm.
JE: They will be graded for different, um, um, working tasks, um, um, um, in the progress of the course and also we can discuss this topics or this documents or this essays, the students um, have created and also I uses, used is for content management.
DY: Mm-hm.
JE: Um, I, um, create different links, um, for example to 'Yahoo' when I find an interesting video,
DY: Mm-hm.
JE: Or, I also publish pdf documents,
DY: Mm-hm.
JE:... and so on.
DY: Yes.
[overlapping speech]
JE: This is the...
DY: Sorry.
JE: ...the important area, um, in which I use eLearning tools.
DY: Mm-hm. And what type of content do you have generally, for example, is this more a th-theoretical content or more practical content?
JE: It's more theoretical content.
DY: Theoretical, okay. And, how many students did participate in your eLearning course? Do you have approximately a number, is it high or is it low?

JE: Um, it is so the courses, in the courses are about twenty five, thirty, um, students.
DY: Mm-hm.
JE: Um, and they have to use, um, eLearning instruments,
DY: They have to use?
JE:...but the motivation is different, yes?
DY: Uh-huh.
JE: So, um, students use it in different ways and um, use the communication on the eLearning platform but um, another one they don't like it, um, to use,
DY: Mm-hm.
JE: The eLearning tools and they do only that part really necessary.
DY: Mm-hm. But it is obligatory you mean right?
JE: Yes, it's obligatory.
DY: Mm-hm, and what was your didactical idea in your courses? Is more cognitive or constructivist or social learning, based on social learning?
JE: Oh, the idea is more constructivism orientated (= oriented).
DY: Mm-hm.
JE: I present documents, different inputs, um, of different levels. I have [inaudible segment] you, for example, um, yeah, youtube with videos or pdf documents,
DY: Mm-hm.
JE: Um, I also, um, have different topics from the Wikipedia, for example. I present, um, lists for literature, in a special topic and so on.
DY: Mm-hm.
JE: But, it's only, um, additive to the presence trainning.
DY: Uh-huh.
JE: You know?
DY: It's some kind of a blended learning, you mean.
JE: It is a part of blended learning, right, yes.
DY: Mm-hm. And what kind of teaching and learning activities did you use? You already mentioned but is there a special function of your teaching and learning activities such as problem based learning or project based learning or it relying on sharing or interaction?
JE: It.., mixed up, um,
DY: So.
JE: It one part is, um..., problem focused, um, for example they, mm, the students, they will educated as teacher, high school teacher.
DY: Mm-hm.
JE: Um, they have different problems with an [inaudible segment], what should they do when they, um, go in practice, they work with students later,
DY: Mm-hm.
JE:...and they have, um, they have problems with discipline or motivation of the students. And, they ask what should I do with my feelings, and how can I motivated the students?
DY: Mm-hm.
JE: And, so, we work most times on questions.
DY: Questions, yes.
JE: On the, the, practice.
DY: Mm-hm.
JE: And, fantasies of what can be when it's not so good in the education.
DY: Mm-hm.
JE: And then, other part is, we have, um, a query, query focused theory,
DY: Mm-hm.
JE: ....frame, um, they will, um, be explained and we try to work on this theory also with, um, um, how can I say it in English....scenarios.
DY: Scenarios, uh-huh.
JE: Yes, psycho drama, for example, so we make more supervision. You know supervision?
DY: Yes.
JE: Consulting method, yes.
DY: Yes. Okay, and what kind of tools did you prefer to use, you already mentioned these also but is there a special preference such as we use generally web 2.0 tools or we used the tools that the university is providing to us?
JE: Oh, explain me again. It was a little bit to fast to me.

DY: Okay, um, do you have a preference in the tools such as we use mainly web 2.0 tools or,
JE: Okay.
DY: ...or we use what the university offers for eLearning?
JE: Yes, um, it's my, my opinion or my idea of education is to use web 2.0 tools but um, I don't understand the young people don't like it to conversate, um, the conversation, the learning conversation in web 2.0. That's, that's not common.
DY: Uh-huh.
JE: But the most have, um, I used the web, for example, the web based eLearning platform.
DY: Mm-hm.
JE: And, then is finished, um, we have the präsenz ("presence") trainnings,
DY: Mm-hm.
JE:...and, they are, in this context, I will work, in in practical, um, examples,
DY: Mm-hm.
JE: ...that is important point. But web 2.0 based trainning, um, is not usual.
DY: Is not a preference by the students, you mean?
JE: Yes.
DY: Uh-huh. Okay. And what did you do to enhance communication and collaboration while you doing your eLearning course?
JE: Uh, sorry?
DY: What did you do to enhance communication and collaboration in your eLearning course? What was your activities to enhance communication?
JE: Um, groupwork, it is the most used, um, um, technique which we try to install and we have a groupwork and we also try in the forums of the eLearning platforms that the students give feedback to work what they have,
DY: Mm-hm.
JE...developed and so they can discuss, eachother the products of your works.
DY: Mm-hm. And how did you evaluated the success or failure of your students in your eLearning course, what was your criteria?
JE: Oh, um, for the exam or only for the learning coaching to help give advices also and so on.
DY: Um not, for the exam but overall, how did you evaluated the for example, if the students learned what has to be learned or not in your eLearning course? What was the criteria?
JE: Okay...The criteria, um, we have, the eLearning platform is only a distributional instrument.
DY: Mm-hm.
JE: But, I, the- the learn progress, I evaluate only on, um, essays,
DY: Mm-hm.
JE:..in my area, only on essays and I focus, I focused it on individual, individual, um, learning goals.
DY: Mm-hm.
JE: So they have to, when they started the course, they have, um, to fix, um, their learning goals each student,
DY: Mm-hm.
JE:...and this goals are the criteria,
DY: Okay.
JE:...to evaluate the learn progress.
DY: For example, you told me that the students are entering to the forums, discussion forums,
JE: Mm-hm, yes.
DY:...and gave feedback dort ("there"), um there,
JE: Yes.
DY:Do you also grade these feedbacks or evaluate those feedbacks?
JE: No,
DY:No.
JE: No, in my case, not.
DY: Okay.
JE: I teach um, I teach an area, in which it's more important for example, the whole affective topic, emotion, feelings, um, moods and so on.
DY: Mm-hm.
JE: It's more, um, more necessary to get, um, self experience,
DY: Uh-huh, self experience.
JE:...to reflect, um, the own process of emotion and only when you can understand this process into yourself,

DY: Yes.
JE: ...you can go in a good way in contact with your students.
DY: Mm-hm.
JE: You know? So, we try to discuss um, different theoretical topics, in the reflection of what does it mean in my own context and how can explain my process into myself.
DY: Uh-huh, somekind of self-reflective.
JE: And, what's the motivation and the, the, way how I can, how I go in contact with another people in this example or especially how go in contact with students but how I react for example, to different behaviors of students.
DY: Mm-hm. As I understand, your eLearning course is circled around the self-recl-/ self-reflective learning, problem-based learning,
JE: Yeah.
DY:...and constructivist environments, right?
JE: Yeah.
DY: Yeah, okay. And what kind of benefits did you noticed while instructing with eLearning? Is there any benefit did you notice?
JE: Um, the benefit is, um, I have, um, [inaudible segment] way and easy way to distribute um, um, learning documents.
DY: Mm-hm.
JE: And, I can also, um..., easy, um, easy, um, I-I'm less of the right word in English, sorry.
DY: Uh-huh, okay.
JE: To put a new content, um...
DY: To put a new content.
JE: Um, to the list of my, um, my documents, it's easy yes, you can,
DY: Mm-hm.
JE: ..treat, you can manage the documents,
DY: Mm-hm.
JE: ...um,
DY: You mean the updating of the documents?
JE: Yes,
DY: Yeah.
JE: The update is easy, it's correct.
DY: Okay.
JE: And also, I-I have overview, um, about the use of the content.
DY: Mm-hm. Okay. What kind of challenges did you notice while instructing with eLearning? What was difficult, what was not good structured?
JE: Oh, (short laugh), the challenge, um, in my, um, case is that the students, um, are not so motivated to work with it. It's...
DY: Mm-hm.
JE: They don't like to invest time, extra time, um, for different units.
DY: Mm-hm.
JE: For, also, it was my, my [inaudible segment], my belief that, um, that students, um, like it to get, um, different informations, additional informations, um from, um, in my opinion, interesting way, for example, videos or and so on.
DY: Mm-hm.
JE: But, um, they like more the presence trainning, they will discuss about different topics but they don't like, um, theoretical engagement.And that's, um, a typical behavior for educational students.
DY: Mm-hm.
JE: Yes?
DY: Yes.
JE: I don't know because it is so but the- they like techniques, how can I make a good lesson,
DY: Mm-hm.
JE:...um, but they are not so interested what the theories behind of this technologies.
DY: Mm-hm.
JE: Yeah?
DY: Yes.
JE: That's a little bit difficult.

DY: That's nice information, thank you. And what kind of differences did you notice while instructing with eLearning especially when compared to traditional instruction? Or do you want to add something to here? Because you already mentioned some of them.
JE: What my experience about the combination or...?
DY: Um, when you compare the eLearning with tradition instruction environments, um, what kind of differences do you notice?
JE: Um...,
DY: You already mentioned some of them but if you want to add something okay, if you don't we can skip the question.
JE: Yes. Um, one of the most interesting, um, vorteile ("advantages") in English...
DY: Advantage.
JE: Advantage...
DY: (short laugh)
JE:...thank you, a one is that you, um..., not depend the time and place and...
DY: Mm-hm.
JE:...you can work and learn in each place where you staying,
DY: Mm-hm.
JE:...and also that is an advantage for me as teacher, I, I can distribute different messages, um, out and far from the presence trainning, presence course.
DY: Mm-hm.
JE: So, I think that is really good, or sometimes, you have by yourself a problem, um, documents, also, so you can, you, each time in contact with your students.
DY: Mm-hm.
JE: That's really helpful, I think.
DY: Okay, do you need any support while instructing with eLearning?
JE: No, I'm the most of them, I have learned and trainned by self-teaching.
DY: Mm-hm. Okay. Could you please shortly evaluate eLearning in your scientific field?
JE: Sorry?
DY: Could you please shortly evaluate eLearning in your scientific field? For example, how important is it for your scientific area, for your research area or...
JE: I think that's really important, um, it's..., it's..., you can't, you can't make, um, courses without this instruments, perhaps you can but um, different advantages, I wouldn't miss it.
DY: Mm-hm.
JE: Yes, I think it's normal for me, it's normal to create blended learning.
DY: Okay. What do you think about the other teachers? Um, can you guess their ideas, too, about eLearning?
JE: I think the most teacher, see in eLearning, useful tool, the most. I only remember the elder professors, um, they sometimes, um, have not so good feeling about this but they don't like to engage it by himself to learn new technologies.
DY: Mm-hm.
JE: Yes, but, um, on our university it's normal, normal to work with, um, with eLearning.
DY: Okay.
JE: [inaudible segment].
DY: Mm-hm. And if a software or electronic environment have to be created just to enable eLearning in your own scientific field, how would it look like, could you please describe or if you want you can skip the question, too.
JE: How they, they, the technical, um...
DY: For example, if a new, um, electronic environment for eLearning have to be established only for your scientific area,
JE: Yeah.
DY:... and what kind of features should it contain in itself? What's necessary for you?
JE: Okay (laugh).
DY: (laugh)
JE: I have anytime, um...,
DY: If you want you can skip.
JE: Yes, I-I try to, yes, what's important, the stream, they um, they-they, for example, they lautsprecher ("speakers") in German,
DY: Excuse me?
JE: The audio techniques, your question was which, which...

DY: Features does it have?
JE: Features?
DY: Mm-hm.
JE: means...
DY: What do you need as more tools to enhance your learning, teaching and learning activities?
JE: Yes, um, a headset for example, the normal, the normal (laugh), um, the normal features which you have on PC or on notebook.
DY: Mm-hm.
JE: You ask for extra features?
DY: Yes, for example, it would be an innovative kind of platform and what kind of new features, for example, what, how can I explain this,
JE: Yes.
DY: The software developers will establish a new software for eLearning and only for your students and you.
JE: Yes. But, only, it's a spontan (=spontaneous) idea,
DY: Mm-hm.
JE: If I work in, um, technological area for example, or in biology, for example, then it would be perhaps helpful if you have 3D, yes?
DY: Yes.
JE: I think or when you are medicine student,
DY: Mm-hm.
JE:...so, I think it's, can be helpful feature.
DY: Yes. For your area, scientific area?
JE: For my areas, oh I think it's the standard PC is, is okay.
DY: Okay.
JE: The teacher, um, have only then, only then, um, um, bedeutung, sinnvoll.
DY: Mm-hm.
JE: Okay. Um,
DY: Okay.
JE: If you get a feature you must, um, you have to use it, it you need a recent for what but when you have a feature but you it is not necessary, so, you can forget it.
DY: Mm-hm. Okay, this is the end of my interview. And, thank you very much for answering my questions. Is there anthing you would like to add to the interview?
JE: Oh, no, it's okay.
(out of topic)
END OF TAPE 1. (1 TAPE TOTAL)
END OF THE INTERVIEW.

Participant ID: Dr. –Ing. Andre König
Interview Name: Instructor Interviews
Short Biography: Scientific Staff working in the field of Electrical Engineering and Information Technology in TU Darmstadt
Site/Location: Skype VoIP
Date of Interview: 20/03/2012
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (3 TAPE TOTAL)
(Out of topic)

DY: Hello!
AK: Hello! Good Morning!
DY: Good Morning! Can you hear me clearly?
AK: Yes. Great.
DY: Okay. How are you Mr. König?
AK: I'm fine, thank you.
DY: Um, Shall we begin quickly with the interview? Um, I would like to ask, first, but, about your, um..., how many years do you have a relation with eLearning?
[No internet connection]
END OF TAPE 1. START OF TAPE 2 (3 TAPE TOTAL)
DY: Hello!
AK: Hello!
DY: For the first time, I'm having an internet connection problem here. Um, first of all I would like to ask to you, how many years do you have a relation with eLearning?
AK: Okay, sin-since 2005.
DY: Since 2005. And how many electronic courses did you thought until now?
AK: Um, two.
DY: two?
AK: two.
DY: And, do you have a present eLearning course?
AK: Um, we just finished one, yet.
DY: Okay, um. Could you please share your experiences and describe your eLearning course to me?
AK: Um, could you specify this?
DY: Okay. For example, what type of content did you use in your eLearning course?
[Sound break]
DY: Hello!
[No internet connection]
DY: Hello!
AK: Hello!
DY: Okay, [short sharp laugh], um, for example, what type of content did you use in your eLearning course, what was your aim or objective in your eLearning course?
AK: Um,
DY: So, first of all, let's start with the name of the course, I think.
AK: Um, so, in-in the first course which is 'communication I', we used the wiki,
DY: Mm-hm.
AK: In which, we provided online materials, we, we recorded the lecture, while the recording, we provided the exercises, sample solutions, we provided a forum for discussions.
DY: Mm-hm.
AK: And also, some tools for registration for example, the students should, um, join some some exercises groups or register for, um, exam review, um, we all did this in the wiki. We have also one e-teaching award here in TU Darmstadt; we got this for, um, for this 'Communication I' and wiki.
DY: Mm-hm.
AK: Um, we also used the wiki as the, a kind of a feedback channel in which we have one system for the lecture, students could get bonus of 0.3, 0.7. Um, preparing for their exam and they have to write wiki articles, so they have to choose a topic related to lecture and they have to write some article on that topic and we also selected some of the, um, articles, so, the best one's and took them in the lecture. So, presented the topics in the lecture that the students wrote about.

DY: Mm-hm. Um, is this a practical content what you used in your eLearning course or is more a theoretical content?
AK: So, what do you mean by practical and theoretical?
DY: Um, because in engineering sciences there are some practical content, for example, where the students have to do hands- on training, um, was it some kind of a theoretical content like, explaining the situation or formulas, etc...Or was it, um, allow some discussion on it?
AK: Both.
DY: Both. Okay, what was the didactical idea behind? I mean it was blended learn- was it blended learning or project-based learning, problem based learning? What was the idea behind it?
AK: Um, well, first, it was a normal lecture,
DY: Normal lecture? Mm-hm.
AK: Provided the wiki as eLearning tool for the lecture.
DY: Mm-hm.
AK: We have a kind of a added-value.
DY: Mm-hm. And, what did you do to enhance communication and collaboration between you and your students and between your students? Again, the wiki, or, did you use some kind of a web 2.0 tool?
AK: Um, no, for this course, it was only the wiki.
DY: Only the wiki. Okay.
AK: We put everything on this wiki platform.
DY: Did the students worked individually or within a group?
AK: Um, both.
DY: Both. How did you evaluated the success or failure of your students? What was your criteria?
AK: Um, so, as I said, we provided a-a bonus system for the lecture which students could obtain either 0.3, 0.7 bonus grades for the exam.
DY: Mm-hm.
AK: And, with this you can see very clearly the participated, who was very active in the wiki, who wrote articles, participated in the bonus system and what grades those students got in the exam and how this relate to each other.
DY: Mm-hm. What kind of benefits did you notice while instructing with eLearning?
AK: Um, well, I think, the effort is, um...is much less for us, as teachers if we have eLearning platforms.
DY: Mm-hm.
AK: Because, that's what would I like the students first, we will always say, first go to the forums, and if you don't find answers there, if you cannot discuss there, then, [inaudible segment], give a mail or call us or come by.
DY: Mm-hm.
AK: Um, this strongly reduces the effort because, um, my [inaudible segment], is the case that, um, ten, twenty, so we're talking about course of the 200 student, then, ten or twenty have the same questions.
DY: Mm-hm.
AK: And, you can direct this to eLearning, um...
DY: Effort-reducing, you mean. Okay. Um, what kind of challenges did you notice while instructing with eLearning? Or is there a challenge that you have noticed?
AK: Um, yes it was, um, so we recorded the lectures and we provided recordings of each lecture and um, we usually observed that we have less students in the lecture halls, when we record the lectures provided the online recordings, um, compared to if you don't provide recordings.
DY: Mm-hm.
AK: So, it's always a trade between whether want to have students in the lecture hall or whether want to have a discussion in the lecture hall or if you want to-to-to push it to eLearning and the, let's say combining these two worlds, combining the-the-the, um, lecture in the lecture hall with the eLearning.
DY: Mm-hm.
AK: or for, that's kind of a challenge, I think.
DY: Mm-hm. What kind of differences did you notice while instructing with eLearning? Especially, when compared with the traditional classroom? Again, the challenge you mentioned or is there anything else you would like to add?
AK: Um, what kind of differences? I think main difference is that students tend to stay away. Um, especially at the end of the term, you have, the very few students sitting in the lecture hall.
DY: Mm-hm. Um, do...

AK: Um.., and, it's...
DY: Sorry!
AK: it's also, um, students tend to expect the very fast response from you. So, they tend to expect that you are always sitting behind the PC and always answering, um, always answer their questions and that you're permanently online.
DY: Mm-hm.
AK: in eLearning environment.
DY: Mm-hm. Do you need any support while instructing with eLearning?
AK: Um, usually we hire some, some student teachers which is just to-to the size of the courses, we are talking about the lectures with the 52 students, um, we hire student teachers that help us in answering the questions.
DY: Okay.
AK: That was for the recordings, for example.
DY: Recordings. You mean the student teachers; student assistants are helping you to support your eLearning activities?
AK: Exactly.
DY: Okay. Could you please shortly evaluate the situation of eLearning in your scientific field? How important is it? Or is it really necessary in your scientific field to use some eLearning environments?
AK: Yes, yes. It's usually expected by the students that at least that you provide every material that is related to the lecture. And also, that you provide some discussion forum.
DY: Mm-hm. And if a software or an electronic environment have to be created just to enable eLearning in you scientific, specific scientific field, how would it look like? Could you please shortly describe it? Or, do you have an idea like this?
AK: Um, actually, we have a university wide, eLearning platform, eLearning tool which is Moodle.
DY: Mm-hm. You are using Moodle, and, um, did, your, ah, sorry, did your scientific field uses some kind of web 2.0 tools? Or they, usually generate their own tools themselves?
AK: Pardon?
DY: Um, did your scientific field prefer to use some kind of dig-digital media tools, web 2.0 tools or did they prefer to generate or create their own tools by themselves? Because, in engineering studies, I see that they are creating their tools from years now on by themselves and they are using them in their lectures and is there a situation like this in your scientific field, too? Or, you are using what is offered by the university, or what is offered by the internet or etc...?
AK: So, for the courses, we are using what is offered by the university, we are on this Moodle platform. And, um, so, my course was communication networks II, for communication networks I, um, now, we, well, I don't want to say we do better, we developed the wiki and um, we set it up to our needs.
DY:Mm,hm. Okay. And, actually, it's the end of the interview, I would like to ask you, is there anything you would like to add to this interview? About your eLearning course or is there any question you may think that I should have asked?
AK: Um, since this is the first interview that I'm doing in terms of eLearning.
DY: [short laugh], Okay. But, it was fine actually.
AK: I can think about it, you mean, if I have some comment I can write you an e-mail. Yeah?
DY: Oh, it's very nice, thank you.
AK: What would be interested or what do you need, I mean what are you planning to do?
DY: Um, actually my thesis is on the academic scientific fields different uses of eLearning.
AK: Ah!
DY: I already conducted some interviews with some eLearning experts, and I asked them 'do you think there is a difference between the eLearning use of um, um, some kind of scientific fields like engineering and social sciences. And now, I'm in the second part and I'm asking now to the lecturers from engineering and social sciences, how do-how did they- how do they do their eLearning courses now, nowadays. And, to combine them and if you like to add any information about your eLearning course, I will be glad-glad.
AK: Okay, so interesting, well, maybe it could be also interested for you to; we have eLearning centre here in TU Darmstadt.
DY: Mm-hm.
AK: Um, which tries to bring eLearning, um, not only to engineering, computer sciences but also, in to biology and psychology, for example.
DY: Mm-hm.
AK: Um, so if you want to talk to them...

DY: Um, it's really great because I need some lecturers who are using eLearning right now and may be they can give me some names that I can contact with.
AK. For sure.
DY: Mm-hm.
(out of topic)
END OF TAPE 3. (3 TAPE TOTAL)
END OF THE INTERVIEW.

Participant ID: Prof. Dr. –Ing. Jörg Lange (JL)
Interview Name: Instructor Interviews
Short Biography: Professor at TU Darmstadt
Science: Faculty of Civil Engineering – Department of Steel Construction
Site/Location: Skype VoIP
Date of Interview: 20/04/2012
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (1 TAPE TOTAL)
(Out of topic)

(Short introduction of the interviewer)

DY: For how many years do you have a relation with eLearning actually?
JL: Well, I think, um, eight year now, we are doing, um, um, eLearning in teaching and in research.
DY: Okay. How many electronic courses did you thought until now?
JL: Well, um, I, electric electronic courses, um, I have three.
DY: Three. Do you have any presently eLearning course?
JL: Yes, presently, um, I have, actually, all three, all three, are currently running, yes.
DY: Um, could you please share your experience and describe your, one of your eLearning course to me?
JL: Well, I'm, they are very different, um, so first one is a course where we record the lectures that I give in the lecture room. And, the students can look at recording afterwards, um, or if they miss lecture they can look at the recording um, they later, if they are sick, um, or, they have something other things to do, so that's something very basic, very, um, just record the lecture and offer the lecture or with learning management systems to the students. Furthermore, they get various sheets with tasks, homeworks, or can so on...in this learning management system. Well, that's the first course. The second course works also with recordings but in addition to the recordings and to the learning management system in which we offer all kinds of task sheets homeworks and so on. We also.., use a special software of the, um, lecture notes, we have for about one hundred pages of lecture notes of this lecture. And, they are hosted by a system called 'emargo' where students can write comments to all, all paragraphs of the lecture notes. And this comments are visible to the other students or, and to the lecturer, um, that makes it possible for the students to ask questions whent they read the lecture notes. They can um, write a question in the margin and the lecturer will see their question and can answer the question rightaway by e-mail or in a forum that is offered by our learning management system. Or, the subject might be discussed in this lecture. This, um, [inaudible segment], um, are at students all over Germany,
DY: Mm-hm.
JL:...and in fact we have usually a two thirds of the participants not coming from our university.
DY: Uh-huh. Okay. And what type of content do you use in your eLearning? Is it more practical or theoretical?
JL: Um, it's, um, in this two courses I just mentioned, we have um, exactly the both, the first course which offers currently only the, um, recordings of the lectures, are very theoretical, um, course, um, um..., [inaudible segment], which are terms in civil engineering, very theoretical problems and subjects.
DY: What are the names of the course? (noise)
JL: Sorry?
DY: What are the names of the courses?
JL: The first course is torsion and the lateral torsion of buckling is the name of this course.
DY: Mm-hm.
JL: The second course which has, um, more, elaborated theme was lecture notes on the internet and uni forum, and all that we have many foreign participants. We even had a German speaking participant from Brasil a few years ago in this course. That is a very practical um, subject, it is a, um, production, fabrication and erection of steel structures. So, it goes through the whole production process, the fabrication of the structures so that is in contrary to the other course very hands-on subject towards steel borders, steel buildings, steel bridges while the building fabrication and all these.
DY: What was your aim or objective in your eLearning courses, why did you use eLearning?

JL: Well, there are um, various reasons for using eLearning, the second course, um, we use for this eLearning because the subject well, I'm teaching, they are this fabrication, erection , um..., thing, is not covered in civil engineering at German universities. So, in civil engineering in German universities, the focus is usually on fabrication and erection of concrete structures. And, steel plays a minority, well, if at all. Especially, this course fabrication, erection, construction of these structures is thought only by me at our university in Germany. So, various colleagues from other universities asked um, for the lecture notes or asked whether I can give a guest lecture and so nearly, exactly eight years ago, the idea was to offer this course via internet to other universities. That's the reason why we did this. On the other hand, another reason was to [inaudible segment] and secondly of our students are [inaudible segment], to prepare examinations by or looking the lectures again.
DY: What was your didactical idea, for example, your course was more behavioral, cognitive or constructive [inaudible segment, soundbreak].
JL: Sorry, I didn't understand that...
DY: What was your...
JL: question.
DY: ...didactical idea in your eLearning courses, how did you decide? For example, was it more behavioral, cognitive or constructivist environment [inaudible segment, soundbreak].
JL: Oh, that is a good question, we see this two courses, um, I think it is more..., behavioral and cognitive not a constructional, um, structure of the course, courses. We have a third eLearning course, which is also currently running well, we are definetely using a constructive approach where students have to work and develop in the net, you know wikipedia, similar thing, um, subject so we have definetely, um, constructive, constructivistic approach but in the other two I explained, it's more a behavioristic or cognitive dimensions.
DY: You already mentioned some of your teaching and learning activities in your eLearning course, um, is there anything you would like to add? For example, what kind of teaching and learning activities do you use more while you mentioned some platforms emago I think, um, the students are making comments there and just-in-time information they can get for sure, but is there any specific teaching and learning activity that you use in your eLearning course?
JL: Well, as I mentioned the third course, we are currently doing, I hope I understood your question correct, um, there we have one subject, um, which is very um, difficult subject in structure engineering again that's a theoretical subject. And here, for three weeks I don't give any lectures at all students have to work in, oh, um, internet surrounding. Well, we prepared a certain pages of information and they have to prepare information and they have to link this information and they have to evaluate the, um, um, um..., new pages that are produced by the fellow students for peer evaluation. Um, then, it's another thing, um, it's very interesting and important and I think what I just realized that I might be able to send you, um, some publications on these things. Because, we presented it at a conference American Society of Engineering, um,
DY: I will be very happy,
JL: ...a few years ago.
DY: for these publications.
JL: Yes, yes. I'm just let me see yes..., in this eLearning network also, a publication from 2009, um, but I can, I will, um, send it to you because I think that might be interesting and it is in English. We have some more publications but unfortunately they are in German. Would that help or...?
DY: I can read German and speak German...
JL: ...send it in German?
DY: ...but not very professional. But I can read the articles.
JL: Okay, so I, oh yeah, so what I will do is I have a comprehensive article on that covers, um, yeah, the things that we, I do here, it has, um, this, um, yes, it has a um, um, production process lecture and it has this wikipedia similar thing included.
DY: Yes.
JL: If you can read German, um, that's, um, I think that's good, gives you an idea of what we do here.
DY: It is good for my thesis.
JL: Mm-hm. Yes, that gives literature that you can cite us.
DY: What kind of tools did you prefer to use? How did you decide to use that tools actually?
JL: Sorry?
DY: What kind of tools did you prefer to use in your eLearning courses? For example, [inaudible segment, soundbreak].
JL: Um, yes, we are using the, um, learning management system, Moodle. You know Moodle?
DY: Yes, of course.

JL: Yes, okay, we are working with Moodle, the recordings, for the recording we are using Camtasia..., um, we use to use Lecturnity, but now we are switching to the Camtasia. Um, and furthermore, it is Emago, um where we give the lecture notes and students can write a comment and questions in the margins of that. This is um, what we are using and furthermore, we are using, um, um, internet-based wikipedia like where we developed a software on our own, tailor suited for this problem.
DY: Do you use anyother web 2.0 applications?
JL: Sorry, I didn't get that question?
DY: Do you use anyother web 2.0 applications, internet-based applications, you mentioned wikipedia like one but anyothers or not?
JL: Mm-hm. No. No. No.
DY: Okay, what did you do to enhance communication and collaboration in your courses? You already mentioned, I'm skipping this question and did students work individually or within a group? Or both?
JL: Both, um, in the first two courses the students worked individually and the third, this wikipedia, um, um, similar thing worked in groups.
DY: And, how did you evaluated the success or failure of your students in your eLearning courses? What was your criteria?
JL: Hm. Well, that's very, um, that's very difficult to really evaluate the success. With this first course, I mentioned where we are teaching as a second, where we are teaching, um, the fabrication, erection and construction, and things like that, um, we can evaluated it by comparing the results of the final examinations or the students who are um, attending the lectures in TU Darmstadt who supposed to have contact, to the students who attend the lectures not in Darmstadt but also only, um, listen to the lectures, in, um, in the university by internet. And, there we compared the results, and we see that final examination results are in average every year for both course is the same, for foreign students and our local students. So, for foreign students, um, are only, um, this is a subject only by internet where as our students are also, have no personal contact and I think that shows the eLearning approach that not better or worse [inaudible segment]. With this internet, wikipedia thing, I think it's not possible to evaluate, um, where we have a [inaudible segment], because it is a different approach and it would be very difficult to expose a part of students to our old traditional learn system and other part of the students to this new system and compare the um, the success of one or the other group of students are no guinea pigs that you can, um, keep in a cage and compare. There is too much interaction between students in groups but I think it is not possible to evaluate success.
[Soundbreak]
DY: What kind of benefits did you notice while instructing with eLearning?
JL: Well, um, one of the benefits for me is that I said the recordings. Once in a while, I use the lastest recording when I can not or can't attend, give the lecture myself. So, there might be a very important meeting, or on stays in Germany and used to, there is usually the lecture day, so in formal times, it always difficult to define a date where also students where you come and a lecturer was free, I'm telling um, the students from Darmstadt, well, the students, they, um, has to be attended by universities in the internet any student in this time can attend also via internet and see the recording from the last year which give me a little more, um, freedom for attending important meetings but I use very rarely. Much more important for me is that the students have more um, liberty and more freedom to um, um..., to work. For me, it's...the recording quite more but for the students have large benefits. Especially, [inaudible segment], and I attend to lecture as soon as I'm healthy, they can get the lecture and learn for the exam more, um, more better approach for the lecturers.
DY: What kind of challenges did you notice while instructing with eLearning?
JL: Sorry?
DY: What kind of challenges did you notice while instructing with eLearning?
JL: Mm-hm. Well, there are various challenges. Of course, there are always technical challenges, the software's not working as well as you wanted to work but that is a minor challenge the major challenge is, most kind of eLearning, you loose the personal contact to the students. In the lecture room, you always have a few students coming after the lecture talking about somethings and asking some questions and get the personal contact to students, you get a personal feeling during the lecture so ressonance from the students, you see um, also becoming player, are they closing their eyes, falling a sleep or you can ask some question and they might respond to the question or not, so, there is much more interaction, personal interaction. Of course, you can try to..., I, give a little personal interaction in eLearning so for in a forum, by e-mail, by chat rooms, for example. But, that is not as personal as seeing a person, meeting a person, during the lunchbreak somewhere in the university campus and talking, answering for the question, so, just for me as a greatest challenge for eLearning is that you loose the personal interaction. I..., actually I don't see an answer for that because that is inherent in

the system because, [inaudible segement], ...learning environment, you can do it at home or at friend, at let's say. [inaudible segment], but you don't have the interaction with the lecturer.
DY: Do you need any support while instructing with eLearning?
JL: Yeah.
JL: Well, yes I need support. But we have support, a very strong eLearning center at our university that gives of course, very good technical support or recruiting equipment, hosting the software, um, and other things. But also give courses, how to do a recording, how to prepare those things. So , yes, we have some good [inaudible segment], invasion and development, and um, they make um, an eLearning bay, was to present new developments for, um, they offer an opportunity for eLearning activists to share [inaudible segement].
DY: Could you please evaluate eLearning in your own scientific field?
JL: Sorry?
DY: Could you please shortly evaluate eLearning in your scientific field? For example, how the other lecturers are having attitudes towards eLearning, or are they want to use eLearning? Or are they very strong against eLearning, etc...?
JL: Well, um, I think, my faculty or in my research field, I didn't get...
DY: Yeah, in your research field.
JL: My research field. Well, in my research field, um, in Germany, there are not many colleagues who are active in eLearning. It is more another and it is not that they are against it but, I think the main problem is that teaching at the university level, has not as much um..., how shall I say?...a value, that doesn't give that much, how do you say?...um, acceptance as research. So, most colleagues, put much effort in developing their research portfolio, starting new research projects and they teach as a learn it from the teachers, so that's a traditional, um, approach, you learn something from your teacher, you do it in the same way because it works, you get your ideas effort and your power in reseaerch. So...,
DY: You mean, they have been, they are not trying to enhance the teaching?
JL: Yes, in Germany, teaching is not major point of interest. Of course, teaching and research are important, but they give more emphasis on research. Because research success and development and research is accepted more in the community. You get research funding, if you have good ideas for research projects you get research funding and all that. And, in teaching, if you are good in teaching that is supposed to have but it is not as important as in research.
DY: If a software or an electronic environment have to be created just to enable eLearning, how would it look like in your own scientific field? Can you describe it shortly?
JL: Sorry, I didn't understand your question.
DY: Okay, let me repeat, If a software or an electronic environment have to be created just to enable eLearning, how would it look like in your own scientific field?
JL: I have no idea, I don't think we need a specific eLearning environment for my um, oh, scientific area or for my... I mean so I got eLearning environments um, available learning management systems, all kinds of software, recordings and so on. I-I would not look for special eLearning environment for structure engineers or for steel engineers or for civil engineers also. Um, or engineers in general, oh, I don't think that, that's something we need and we are looking for.
DY: Actually, this is the end of my interview, questions, sorry, I would like to thank you a lot for your contribution to my PhD thesis. Is there anything you would like to add to this interview?
JL: Well, no I don't have any idea. But I would be very interested if you finished your thesis, it is possible to receive a copy, um, a pdf by e-mail also would be very nice. Because, we also have the research in eLearning, also I'm civil engineer and my main research subject is civil engineering. But all this, I try to research in eLearning and teaching, things like that so that would be very nice when I got a copy of that.
DY: As soon as I'll be finished with my PhD, I will send you a copy of my PhD thesis.
(Out of topic)
END OF TAPE 1. (1 TAPE TOTAL)
END OF THE INTERVIEW.

Participant ID: Dipl.-Soz. Tanja Müller (TM)
Interview Name: Instructor Interviews
Short Biography: University instructor in the field of Sociology at Leuphana University, Lüneburg
Site/Location: Skype VoIP
Date of Interview: 04/06/2012
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (1 TAPE TOTAL)
(Out of topic)

DY: I want to ask first um, for how many years do you have a relation with eLearning?
TM: Seit wann ich jetzt..eLearning mache oder?
DY: Ja. Oder haben Sie erfahrungen mit e-lernen, eLearning?
TM: Ja...die...das ist immer die frage was ist...wo beginnt eLearning und...um, wo hörst auf, also in Prinzip seit dem ich angefangen habe Lehre zu machen und zwar...seit 2006 als Dozentin.
DY: Mm-hm. Um, and how many electronic courses did you thought until now? Wie viel...wie viele...?
TM: Ja...ja. Um, I think...hm, (thinking),
DY: (Short laugh)
TM: Something about four or five.
DY: Four or five (noting). And how many do you have presently?
TM: eLearning or or? Not at all.
DY: It can be blended learning, full time eLearning,
TM: Ja.
DY: Distance education.
DY: I have not categorized them.
TM: Um, this, this semester I don't have any eLearning or blended learning course.
DY: Uh-huh.
TM: Apart from using a platform, I use one platform in-in from my university but this, you know, it is not eLearning. I think.
DY: Like document sharing may be.
TM: Huh?
DY: Like document sharing...
TM: Yes, yes.
DY: Yeah, yeah. Okay.
TM: But this is nothing, I call eLearning um, or blended learning yeah.
DY: Yeah, okay. And could you please share your experiences and describe one of your eLearning course to me? For example, from the what type of content did you use, what kind of tools did you prefer to use?
TM: Yeah. Okay, um, Ich habe in Hildesheim an eine Fachhochschule, ein um, Kurs gemacht, da ging es um Forschungsmethoden.
DY: Mm-hm.
TM: Quantitative Forschungsmethoden den habe ich kombiniert mit eine Kollegin. Sie hat es in Moodle primer erarbeitet oder hat viel mit Moodle gearbeitet. Ich habe eher mit um, Stud.IP or Stud.IP...
DY: I know.
TM: You know?
DY: Yes.
TM: Stud.IP or what is called I...gearbeitet und dort habe ich verschiedene tools so selbst entwickelte tools, DoIT ist eins....
DY: Mm-hm. Selbst entwickelte?
TM: Do.IT. Nee! Ich habe das nicht entwickelt das war in der Zeit in dieser Platform entwickelt.
DY: Ach so!
TM: Um...und dort konnte man Gruppenarbeiten gut quasi handeln und das war ein Seminar was Blended Learning organiziert war. Es gab praesenz,
DY: Mm-hm.
TM: ...termine, die in Blok termin....(noise) veranstalten und dann jetzt...und dann um, hören Sie mich noch?
DY: Ja, bisschen schlecht geworden irgendwie.

TM: Ja...
DY: Das kann auch zur der Internet verbindung liegen.
TM: Ach ja! Okay.
DY: Okay, ich höre klar, jetzt.
TM: Ja?
DY: Okay.
TM: Komisch. Also der Kurs war in Blok termin um, und zwischen den Blok termin müssen die Studierenden aufgaben um, erstellen und hatten dort um, um, zwar in Prinzip alles dort, inprin- dann gewiessermassen geschrieben und zwar in ein Form eines Forschung Ablaufs. Also, fragenstellung kreieren, hypothesen um, erstellen, um operationalisierung und so weiter. Das heisst der ganze Forschungs Ablauf war über dieses tool in den Gruppen eh, um, laesst sich organisiert. Und, das gab der Zeit zu den die Sie einreichen mussen, ich konnte dort Feedback geben und zwar in Prinizip alles an ein Platz ohne um, hin und her gee-maile und so weiter, und so weiter. Von das die Studieren da zu greifen nicht da drauf zu erreichen können, das heisst...
DY: Mm-hm.
TM: ....in Prinzip, von der vorbereitung war das viel arbeit dieser Aufgaben und diese Beispiele zu erstellen in-in der Platform. Also, beispielhaft zu sagen, okay eine Fragestellung waere zum Beispiel das,
DY: Mm-hm.
TM: 'Erarbeiten Sie das für Ihre eigenes Projekt bis zum...' und das war den immer zwischen diesen Einzeln Blok termin und um, am sonsten hat das die Arbeit aber sehr erleichtert weil ich einfach wusste und gesehen habe wo um, die-die sachen standen weil das naturlich...um, also von der aufgaben formulierung und was man dort alles eigentlich noch machen kann da konnte man sehr sehr viel mehr machen aber das ist einfach mal eine Frage der Kapazitaeten und Ressourcen.
DY: Ja.
TM: So, ich habe das alles in Rahme meines ganz normalen Lehrauftrages gemacht ohne zusaetzliche bezahlung oder irgendwelche solche sachen. Ja.
DY: Um, Sie haben gesagt diese Dot.it tool.
TM: Do.IT.
DY: Um,
TM. Do (dot) IT. Do.IT.
DY: Do (dot) IT.
TM: Do.IT, called Do.IT
DY: Yes.
TM: Like Stud.IP.
DY: Uh-huh! Do.IT! Okay, um, what kind of a tool is it? I mean what did you do with this tool? For example...
TM: It managed the groupwork because they, the students tend to um, um, go into one group,
DY: Mm-hm.
TM: ...and then they, when they do this tool, they only saw there,
DY: Uh-huh.
TM: Um, um, more facets of...
DY: Is it like a wiki, forum?
TM: No, no, no, no.
DY: No.
TM: It is not like a wiki, really.
DY: Uh-huh.
TM: Because, I...no, no, it is not a wiki, it is to organize the um, um, these groups and they have to put, upload, their work,
DY:Uh-huh!
TM: ...until a time and you have...you can prepare um...um or you can say when you want that they see your new um, ah, u-um, die neue Aufgabe,
DY: Mm-hm.
TM:...man kann das zeitlich einstellen und....
DY: Like a task manager also.
TM: May be a little bit. May be a little bit. Yes.
DY: Yeah. Yes. Um...
TM: But, and it's integrated it is nothing different it is integrated into the Stud.IP and we have to choose it,

DY: Mm-hm.
TM: ...that's why, it also easy and you can say okay, um, um, when I use it I can download direct and say them okay you find these things in the um, Dateiordner, somewhere and it's everything is on one um, um...in one place or in one,
DY: Mm-hm.
TM:...and it is nothing new because the students usually they have, they use Facebook and everything like that but,
DY: Mm-hm.
TM:...if you introduce a new platform or something you have to introduce it really.
DY: Yes.
TM: And, um, that takes so much time,
DY: Mm-hm.
TM:...in a Blok Seminar, at the weekend, you can not um, um, um, spent so much time to introduce another platform like Moodle or some, um, um, um, that's why, I-I-I, um, yeah, I choose this one they knew.
DY: Mm-hm.
TM: Because the students they are knew the Stud.Ip and they know how to do it and things like that. Yeah.
DY: Were there any features for collaboration and communication in this Do.IT tool?
TM: Yes, yes. In...yeah, because...
DY: For example? Um, for example like chat rooms, or something like asynchronus or synchronous communication channels?
TM: You can use chatrooms and something like that, everything you can use and,
DY: In Stud.IP?
TM:...in Stud.IP, yeah.
DY: Uh-huh!
TM: But I just didn't use it um, um, because to do this or to introduce that tool, um, make that run, you have really have a um, um, load of input and begleitung,
DY: Mm-hm.
TM:...and all these things, so, um, I didn't do that online.
DY: Yes, how did the students communicate with you in terms of when you don't have the present courses via e-mail or ?
TM: Yeah, via e-mail and in this course, they did um, there was always, um, feedback um, Fenster or Feedback window and then, I put my feedback directly to this um, to the, um, things we uploaded and after that they could change it and upload it again,
DY: Mm-hm.
TM:...and some of them, like that, so...but all the other communication was um through e-mail, yes.
DY: Yes, was it the social forms based on group works mainly or individual work also?
TM: What? Pardon?
DY: Were there mainly, generally gorupwork or individual work?
TM: The work was groupwork.
DY: Groupwork, yes, you mean.
TM: Yeah.
DY: How did you evaluated the success or failure of the students in such a platform?
TM: How did I...
DY: Or did you evaluated them on the physical environment ? on their performances?
TM: Oh well, I doesn't understand that really, how,
DY: Okay.
TM: What did I do with, do you mind they did any mistake or what?
DY: You said you give homeworks to them,
TM: Yeah.
DY:...and they have to upload homeworks to this platform and how, what is your criteria in evaluating their works on eLearning platform? Or your criterias are relying on your social, um real, I can not ask, jetzt (laughing).
TM: (laughing). I'm thinking about just a moment, um....because it was blended learning, I explained a lot of things in the seminar and we try to practice it and um, um, we um, in this platform I use to have always an example,
DY: Mm-hm.

TM: ...different examples, so they had to transfer their um, their question their research question and, on their feeds and um, criteria was, it was always inhaltlich, it was on the content based so, I can not say um, well I gave them, or, I said to them...if you do um, um, I need a, sometimes, um, I said oh, also manchmal habe ich den Angaben gemacht, wie viel also, eine halbe Seite oder drei Bücher recherchieren, also zu sagen quantifiziert mit klar ist,
DY: Mm-hm.
TM:..dass das nicht entlos viel ist oder das man das beschraenken soll auf diesen oder jeden bereich. Oder, wenn, wenn Sie etwas operationalisiert haben dass ist erst mal beispielhaft für zwei dinge passieren sollte nicht alles zusammen, so das sowohl inhaltliche Kriterien,
DY: Mm-hm.
TM: Jetzt auch die quantifizierende Kriterien die ich in diesen Tools angegeben habe, klar...gewesen sein, soll.
DY: Yes, but your evaluations are not relying on the performances in eLearning environments, for example, such as the communication with other friends, their groupwork success or...
TM: Okay, yeah, no.
DY: No, no. Okay (short laugh).
TM: Yeah.
(overlapping speech)
DY: What was your didactical idea in using this blended learning environment, is it more behaviorist, cognitivist or constructivist environment, what you want to use there, what did you used there?
TM: This is a difficult question because not, I'm not um, I'm not um, um, Ich bin weder Pedagoge noch Psychologe, das sind diese Bezeichnung nicht so also Lerntheoretischen Bezeichnung nicht so gelaeufig, um...
DY: If you want you can skip the question, too.
TM: Ja, nee, ich um, also, es gibt für das alle faelle Aufbau Bedarf. Also, man könnte da viel viel mehr machen auch so wie Sie eben schon gesagt haben, auch die Arbeit unter einander um, also, die eLearning um, um Arbeits unter den studierenden anders organisieren aber, dafür muss man erstmal die Kapazitaeten haben, ich haette jetzt gesagt das ist eher so...Kognitivistischer Ansatz,
DY: Mm-hm.
TM: Gewissermassen gewesen ist und eher eine Frage der Arbeitsorganisation. Was ist die eine beste Arbeits Organisation wenn man nur am Wochenende da ist, sonst nicht vor Ort ist.
DY: Mm-hm.
TM: Und, wie organisiere ich das mit der Arbeits Gruppen um, das ist die Möglichkeit gibt über eine Platform zu kommen, da kommuniziere die nicht nur mal e-mails ist, sie ihre Materialen einstellen, die über mehrere Semester, also nachhaltig benutzt werden kann.
DY: Ja.
TM: Nicht jedes mal neue sondern, einmal erstellt, kann das so zu sagen wiederverwendet werden.
DY: Okay, you don't get any help from eLearning center, then, you did all the work by yourself.
TM: Yes.
DY: Um, what kind of benefits did you notice while instructing with eLearning, or are there any benefits that you have noticed?
TM: Yeah, of course, there are benefits, um, and I-I'm really interested in eLearning. But I think eLearning is-is you know, it's so huge and um, um, I know, what...or I have an idea what can be done with eLearning but I think the thing I did with eLearning is just rather small and um, to do it more better or to do um, more things you need, really more support from someone whose, you always need, you may need someone in the technical part may be and you are the, you are responsible from the content or the other things in the seminar.
DY: Mm-hm.
TM: Um, am sonsten, das was ich gemacht habe, daran habe ich die nachhaeltigkeit geschaetzt. Also, da ich viel mit den Studierenden kommuniziert habe und Feedback gegeben habe, um, zu den arbeiten. Also,
DY: Mm-hm.
TM: ...Ich war der Tutor in gewissensinne dann auch.
DY: Ja.
TM: Aber einmal dieser 'e' in eLearning eher Umgebung erstellt wurde ich das jedes neue Semester importieren konnte, war das im Prinzip nachhaltig. Und wurde sie von den Studenten auch gut angenommen. Also die haben, die wussten von anfang an wie die Struktur diese Seminar, welche Schritte sie in Forschungsprozess gehen haben so.
DY: Ja.

TM: Und andere sachen die ich mit eLearning gemacht habe, ich habe auch mal mit Wiki gearbeitet.
DY: Ja.
TM: In Moodle, allerdings die da, ist die Technik einfach ziemlich bescheiden, also, ziemlich schlecht.
DY: Mm-hm.
TM: Und, das fand ich eher...eher schwerig,
DY: Mm-hm.
TM:... also wenn da kein regelmassige Technische Support auch für die Dozenten da, bin ich aktuell erstmal wieder von abgerupft.
DY: Uh-huh. Was für ein Support brauchen Sie...in diese Sinne?
TM: Well, it's, it's, it's a support from someone whose um, doing it (laughing) ....using Moodle or something all the day may be um, and someone whose um, whose, um, um, there Didaktisch allefaelle informiert ist. Also, nicht nur Technisch, sondern auch Didaktische Ideen hat, wo man über den Austausch Aufgaben möglicher weise formuliert oder bestimmte Dinge begleiten, betreuen kann, oder, oder, oder...Also, ja.
DY: Ja, denn, das ist mehr Technische Hilfe oder Didaktisch?
TM: Ich glaube eine...
DY: Können Sie dass unterscheiden oder das aller die gleiche, in der gleiche Stelle?
TM: Nee, unterscheiden um, erstmal waere manchmal mir mit der Technischen Hilfe,
DY: Mm-hm.
TM: ...geholfen aber wenn jemand der Technischen, also ich kenne Leute die mir auch Technischen Support gegeben haben, wenn die aber nicht Didaktisch geschult sind, nütz das in der regel wenig. Also, I think all the technical um, support needs...needs definitely the didac, um, knowledge in didactics, um, (confused),
DY: Didactical, yes.
TM:... or whatever it's called,
DY: (laughing).
TM: I don't know...
DY: Yes. Okay. I want to ask now about the challenges that you have faced while instructing with eLearning but you already mentioned some of them, do you wnat to add something into, onto this?
TM: The what? The..
DY: Challenges...
TM: Ah! Challenges
DY: Challenges, yeah.
TM: Okay.
DY: You mentioned the support as a challenge and is there anything else you want to add?
TM: Yes, of course, there are lots of challenges um...it's, it's get to know the technic, if you, if you have an idea, you want may be to do this within eLearning, in an eLearning um, um...content management whatever, system, then you... may have a good idea about to put, put, to intro....or to to get this into all the technical things, this is really um, difficult. So, first you have to get to know, what platform is the best may be for you. Is it Moodle, is it this, is it something really different you don't even know, is it something different you have to pay for? What wiki may be the best form um, erm, do you have to use it in, can you use it or, import it in Moodle or whatever all these things um, there are first the technical stuff. Then, the question of support, do you have someone really ask and responsible for that you said okay, I, my idea in the seminar next semester, I need something like dıdıdıdı...somethink like that, do you know something like that? Or can you go and look for that,
DY: Mm-hm.
TM: Into the internet and we make a, a next meeting,
DY: You mean like an eLearning coordinator?
TM: Yeah, something like that, yes.
DY: Yes.
TM: I think really more like in eLearning courses. Because eLearning courses you always have to do what they want you to do, really, really it's rare that you can um make your stuff in one of these courses. You really need more um, um, solution part and yeah, there are something like a coordinator whose,
DY: Mm-hm.
TM: ....responsible like a Dienstleistung, like, like...
DY: Mm-hm.
TM: You know Dienstleistung?
DY: Like a guidance? Gui-guide.

TM: Yes. Yeah and someone whose um, whose only there to um,
DY: To do that job, for example, who show how you can implement a course on an eLearning platform.
TM: Yeah and how, not only can tell you you can do it like that,
DY: Uh-huh.
TM:... if you say okay next semester, I'll do this that you cooperate, you need more cooperation, that he may be does all the technical implementation whatever and you can say okay, these are my, is my content can you import it or something like that or I need more, more um, ressources or something like that in my, in my Stelle. You know in my, I'm not paid for things like um, doing extra work with eLearning, so.
DY: Uh-huh.
TM: Yeah, there are nice tools but...
DY: Policy changes also,
TM: Huh?
DY: There should be some policy changes, also, you mean, in the university policy changes (short laugh).
TM: May be yeah, if they want to do it or if it's, if they want to do it they need, because eLearning needs time, if you want to introduce a new thing you need more time. You want to um, um, um, die vorbereitung ist einfach sehr lang für bestimmte Dinge. Wenn man die noch Inter-Interaktiv vielleicht machen wollte mit film oder oder oder, brauch man sehr viel didaktisches know –how, sehr viel didaktische kenntnisse, und um Inhalte dafür abzustimmen, um, das kann man nicht in den normalen vorbereitung machen, you need money to do that, you need ressources, you need human ressources to do that um, und vorallemding die Didaktische Erfahrung, also, um ein Didaktisches Design zu erstellen ist mehr notwendig als nur ein Seminar zu führen. This is um, also Storylines für Aufgaben zu entwicklen oder gute Beispiele damit das nicht so langweilig wird wenn eLearning betreibt, das ist glaub ich sehr schwerig. So.
DY: Zur Zeit, sowieso die alle eLearning, nicht die alle, ich kann nicht jetzt generalisieren aber die meisten nutzen eLearning als document sharing funktion. Das habe ich entdeckt in mein arbeit. Doktor Arbeit, ja.
TM: Ja. Ja aber das ist kein eLearning , also ich denke das ist kein eLearning (laughing).
DY: (laughing). Das war schöne Ergebnis für meine Doktor Arbeit aber das kein eLearning, da haben Sie, recht.
TM: (laughing). Ja.
DY: So, what kind of differences you notice while instructing with eLearning, I would like to ask but you already mentioned a lot of differences from the traditional learning environment when we want to compare, so, I asked the question about support, do you need any support while instructing with eLearning, we already discussed it also, if you want to add something, I don't know.
TM: No, I said. It would be a wish to have a someone in the university who is responsible or who can help you in-in-in introducing some courses into a yeah, eLearning environment. Somehow yeah. And to evaluate it may be, to make it better or whatever. Yeah.
DY: Research and development.
TM: Yeah. Yeah, I know they do it more in professional schools, professional schools, professional schools are used to for students who are in their profession somewhere and it's now that they um, have a lot of time um, um, they are not at the place. But at university with young students, you don't usually, also , man hat meistens praesenz veranstaltung und da ist, stellt sich die Frage manchmal wenig, ja, eLearning und um, anzubieten weil man sich doch jede woche sieht. Und, deswegen weiss ich, das ist aber in Weiterbildungsstudiengaenge in professional schools wird das mehr mittel auch um bestimmte sachen entsprechend aufbereiten. Aber, ich finde auch da, sicherlich möglichkeiten an Universitaeren in, also, so kleine, so kleine Einheiten zu machen, ja.
DY: Okay, could you please evaluate shortly eLearning in your own scientific field? In sociology, for example, what are the attitudes of the other lecturers towards eLearning? Do you know something like this or do they like to do eLearning but they don't have any ressources or they say I'm happy with my present courses, I don't want to use any technology in my courses; because there is some attitudes towards social sciences lecturers and students that they don't want include a lot of technology in their courses, is it something like this in you discipline, too?
TM: Um, well, um, there are some, it's, it's, fifty fifty I would say. There are, there are people who are interested like my colleague in Hildesheim she really spent a lot of time, but she got always, she got resources from the university as well, so it was not on her own. Um, she was interested to do, a lot of in Moodle. Um, with statistics and something like that.

DY: Mm-hm.
TM: So, but at my university, in my discipline, I would say, um, people are only use the platform to share documents and this is enough because it-it needs time and if there are no, no, um, keine ausseren Zwaenge, well, if nobody has while we have to do this or um, um, i regulierer Universitaeren Lehre,
DY: Mm-hm.
TM: ...wo keine Zielgruppe jede woche da ist.
DY: Yes.
TM: Stellt sich die Notwendigkeit nicht so...eLearning in einer qualifizerten und um, umfassender in Art und Weise irgendwie, um, zu entwickeln wurde ich sagen ja.
DY: Mm-hm.
TM: Also, die beiden...
DY: (interruption)
TM: Ja.
DY: Sorry, sorry. I don't want to break. Yeah.
TM: Nee, die beiden Positionen gibts einfach. Ja was sagen Sie?
DY: Ja, um, eigentlich die, I will say in English, the first of my thesis, um I did interviews with the eLearning experts,
TM: Ja.
DY:...they said like, um, okay, social sciences is so, they don't have any technological skills, so they do not want use eLearning. They have an argument like this.
TM: Okay.
DY: Um, but I don't know, what is your opinion about this?
TM: Um, okay, yeah, well, yes, of course, there are some people who may not have really or....are little bit afraid of computer or something like that.
DY: Mm-hm.
TM: Um, just tradition is or these traditional people are there, yes of course, but I think there are a lot of new and young people in social sciences as well.
DY: Yeah.
TM: But it's always a question if you need eLearning or if you use eLearning, you have to have a reason to do that. And as well as reason because if you see your students, every, um, every week, in your seminar, at university, or if you don't have enough ressources or if you don't have a good idea, why you should use eLearning now and make-make the effort to to to make something new, um, um, then, of course, you structure your things you used to do in a certain way.
DY: Yes.
TM: Yeah. But, I think this is not only because they don't have the technical skills, it's may be because um, one reason I think, um, is the um, das Didaktishe, die Didaktischen Informationen oder this Didaktische wo insgesamt zu wissen wie baue ich etwas auf so für die Seminar Didaktisch gut aber auch um, für eLearning besonderes für eLearning.und dann aber auch um, ist das die fragestellung von um, Lehre insgesamt also, if there's, if the people are looking at your things, your qualifications, or your publications you know, all the output in publications and they don't ask 'okay what are you doing in your seminars?' 'are you doing eLearning?' or ' are you doing some innovations into your seminars or something like that then, you know whose interested it because, because if you go somewhere else, you have to show, okay, this article, this book, this article and this book and no one here is asking another question.
DY: Yes.
TM: That's why, the the the interested in for me, or this is for me another reason why there is not so much um, interest, in , um, in the things may be.
DY: They, you mean something like, there have to be a push from the university that they should use some, kind of eLearning tools and not tools, eLearning methods didactically but first , the lecturers have to be trained in the sense of eLearning, is there an opinion like this?
TM: Um, yes, but it is more, it is a more global opinion I have.
DY: Yeah.
TM: I think, first universities or social sciences or sciences at all, should recognize that universities are not only there to research but also for students, also for teaching to students.
DY: Yes.
TM: And, until this point, teaching students is especially in Germany, um, still a point which is not so, um, um, um, if you don't get so much reputation from teaching students rather than you get it from doing research doing all the best in research and not in teaching, so first this one, then, um, when you

um, when this is recognized may be, you can say, okay teaching students is um, um, as important as doing research then all this teachers have to have a, much more didac-didactical knowledge than they have at the moment or they can prepare their classes, in a different way may be. They-they know about the opportunuties or the things in eLearning and so on and so on. And then, may be you can say okay we can do some um, um, Anreize or give some Anreize to introduce eLearning. Um, but not only eLearning for the reason of eLearning but eLearning with some content with sein idea to make the common lecture or seminars better, you know.
DY: Yes.
TM: This would be the thing I, I think, I would wish or something like that, yeah.
DY: I have a nice answer on this (laughing).
TM: What?
DY: I-I have a nice answer on this , thank you (laughing)!
TM: Okay.
DY: I skip to my next question question.
TM: Yeah.
DY: It is a little bit creative question, um, I have a, if a software or an electronic environment have to be created just for your own sciences, to enable eLearning, how would it look like? What kind of features should it have?
TM: Oh my god.
DY: What is necessary for you?
TM: Okay, it-it must be something which can do or that can do, oh my god, like all the common platforms you have, you can put your um, um, your documents there but it should be um, able because I use things like Dropbox. But not Dropbox, a virtual platform or cloud something like that um, I would wish that I can important all the things, um, much more easier, from my platform, you know, somewhere in the internet into the eLearning platform of the university, this is one point, then, I would wish if the support of this platform is not going to improve at universities then, may be you could do or it is possible to do a somekind of eLearning support something like that or someone who is virtual, you can ask, the person, may be with things like youtube videos or something like that you can see okay how to make this or how to do this or how to...this is a good example, or this is an example, for asking this in this way, and but I would bring in one platform again, because I hate it to go from this one and this one and everything is in different places, and I because my students, they are or I recognized they are new generation coming, they don't really, use eLearning anymore. And they use and they show messages in Facebook and something like that so, sometimes I wonder if its (laughing) not possible to send my messages into Facebook or something like that or to a place in these um, eLearning platform which is kind of Facebook or something like that, I don't know. But may be it's difficult and too mixed from the um, working environment and everything like, um, private or freizeit or something like that. What else, um..., no that's it.
DY: Okay. Thank you very much. Is there anything that you would like to add to this interview?
TM: Yeah.
DY: Or a question that I should have asked you?
TM: Um, for the last point may be um, of course, the platform should have all the common features, um, platforms usually at the moment have, yeah.
DY: Mm-hm.
TM: This, the things I said just, zusaetzlich, additional to the things um, I know from current platforms at the moment. Yeah. Um, what I would like to add is may be...um, I find it difficult or I find it, I think it's difficult to speak about eLearning, if it's not, really clear what eLearning really means and if it's because I always wonder it is called 'e' – learning, you know, and learning is not from , it's somehow from the point of the student, not from the teacher, the teacher is one person in this context but on the other side, um, I- I would like to know much more about the the, view of the students, what they...could imagine in the term. Yeah, anyway, what they could imagine and what they um, would like to wish about may be eLearning. Yeah.
DY: Yes.
TM: Yeah.
DY: Um, how did the interview feel for you?
TM: Oh, it's okay, um...
DY: (laugh)
TM: No, it's okay.
-out of topic-
END OF TAPE 1 (1 TAPE TOTAL)

472 END OF THE INTERVIEW.

Participant ID: Dr. Bastian Pelka (BP)
Interview Name: Instructor Interviews
Short Biography: University instructor in the field of work and education in Europe at TU Dortmund.
Site/Location: Skype VoIP
Date of Interview: 06/06/2012
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (1 TAPES TOTAL)
(Out of topic)

Recorder problem in the first minute. Where the permission has gotten for the record of the interview. The question was for how many years do you have a relation with eLearning?
[sound problem, too quite]

BP: My relation with eLearning is started I would say in 2003, it was ratherly from...research perspective, in teaching, um...with eLearning, I would say 2007 or eight.
DY: 2007 or eight. And how many electronic courses did you thought until now?
BP: I wouldn't call it rather electronic courses but what I did is um...
DY: Mm-hm.
BP:...blended learning, in the point of different content management systems. For example, one I do with Joomla and one I did with Wikipedia.
DY: Mm-hm.
BP: Using them as a learning environment.
DY: Mm-hm. Yes. And do you use any kind of blended learning environment in your courses, pr-presently, currently?
BP: No, I'm not a lecturer at the moment.
DY: Uh-huh. Okay. Could you please share your experiences and describe one of your blended learning course that you have done until now and explain it to me?
BP: Well, what I lecture is um, journalism.
DY: Mm-hm.
BP: Uh-huh. And, the point of my lectures is like giving the um, the journalists an idea, um, of how to use um, electronic devices in their journalist um, work. So, it was the idea of my eLearning sessions is make these journalists use the electronic devices or disseminating news and articles making themselves use of of platforms like joomla or Wikipedia.
DY: Mm-hm. Um, the content that you choose here is more a theoretical content or um?
BP: No, no, no...
DY: No, no...
BP: I tried to um, make it really practical and hands-on. I've tried to make either the students produce their own journalistic content.
DY: Mm-hm.
BP: Or, in another course, I tried the example and said 'no, we are not going to produce any content ourselves. But we are just copy and paste thing.'
DY: Mm-hm.
BP: Because, my idea is um, the students of journalism have to understand the idea of user-generated content.
DY: Mm-hm.
BP: And, to find their own professional journalistic role within the world of copy and paste (laughing).
DY: Yeah (laughing)..., okay and what was your didactical idea in doing this course?
BP: Um, mainly I'm basing my lectures on the ideas of constructivism.
DY: Mm-hm.
BP: And, I think that um..., especially social media, they are offering user generated content, quite well to be explained on constructivistic approaches.
DY: And, what kind of teaching and learning activities did you use?
BP: Um, blended learning.
DY: Blended learning, and with what kind of tools?
BP: I had one course with Joomla and one with Wikipedia.

DY: Uh-huh. Wikipedia. Um..., I mean from the teaching and learning activities were there problem-based instruction going on in this course or was they more project based or you mean hands-on training right?
BP: I would call it a mixture between hands-on and um, project based because um, I let my students decide um, which kind of products they wanted to produce within a course.
DY: Mm-hm.
BP: And, I only gave them the technical framework, for example, in the one course I said we are going to use Joomla and in the other one I said we are going to use Wikipedia. And, I um..., facilitated discussion with the students, on the question of which kind of product we're going to-to, um...
DY: Mm-hm.
BP: ...to develop. Um, and so it's, I would say project work.
DY: Project work, yeah. And what did you do to enhance communication and collaboration between your students and between you and your students?
BP: Um...
DY: Is there a special synchronous or asynchronous communication channel that you have used in this course or?
BP: You mean in technical way, no um...I prefer, I prefer the offline sessions, to have some, to have that communication aspect, I would.
DY: Mm-hm. Um, did the students work individually or within a group?
BP: Um...I would say seventy percent in the group and thirty percent individually.
DY: Mm-hm.
BP: Um, because my courses are styled in a way that we are having some um, some lectures,
DY: Mm-hm.
BP: ...coming together mainly on weekends.
DY: Yeah.
BP: Um... after that everybody knows um what to do and they are um, oh, working individually and then, we come back on the next block and work together cooperatively.
DY: Uh-huh. Yeah. And how did you evaluated the success or the failure of your students in terms of using this Joomla and Wiki, what was your criteria in evaluating them?
BP: Um, I was looking at a very very product that the groups produced.
DY: Mm-hm.
BP: And my approach, to measuring quality is um, that we have a discussion on what we want to reach if we want to start producing a product, when the product is finished we have to compare um, our prior aims to what's the product really achieved.
DY: Mm-hm. And did you use any other web 2.0 tools in this lectures or only Joomla and Wikipedia?
BP: Sorry any what tools?
DY: Any other web 2.0 tools, web based tools?
BP: Okay, um, um...no I don't think so, no.
DY: Mm-hm. And what kind of benefits did you notice while instructing with eLearning? Or is there any benefits that do you have noticed?
BP: Mm...I- I think you have to understand what this lectures are about because um, I didn't select electronic learning for um, for let's say didactical approaches, for reducing the workload or whatever.
DY: Mm-hm.
BP: My approach was that upcoming journalists have to fit to work and with in that environment,
DY: mm-hm.
BP: ...and in my opinion, that here was the best way to work in the environment is to have a course in that environment.
DY: Yes.
BP: So I facilitated courses and which the upcoming journalists are publicating or producing,
DY: Mm-hm.
BP: ...applications within that environments,
DY: Yeah,
BP:...so, for me it was like a kind of a job training.
DY: Mm-hm.
BP: I, in the...um, in-in in the structure of a university, with getting feedback, getting wrap-up, speaking with colleagues and with me.
DY: Mm-hm. Like an a, like a future experience training, I think, your course.
BP: Yes.

DY: ...the structure is, yeah. Okay. I want to ask now what kind of challenges did you face with while doing this course?
BP: Mm-hm. I think the the main challenge and the one that faced most was having a live discussion online. For example, in the wiki course, I told the students that I'm going to um, um, to give their marks in accordance to the products and in accordance to what they discussed in the discussion forum of the wiki articles.
DY: Mm-hm.
BP: Ah, but, but there was was no discussion mainly in discussion forums.
DY: Mm-hm.
BP: Um, because people tended to send some serve e-mails or to chat or use to Skype or anything but they did use the supported communication structures from for example, Wikipedia.
DY: Uh-huh.
BP: So, I find it, found it most hardly to um, to bring people to really discuss online and really discuss within the frameworks of provided ICT solutions. But on the other side that how journalism works. You know?
DY: Yeah.
BP: You are going to work to face some people, speak with them and collaborate but before I the start of the course my idea was that the students would more heavily make use of ICT environments for discussing but they didn't.
DY: Okay, we skipped this question; do you need any support while instructing with eLearning may be it is not valid for your course now but generally?
BP: Any support?
DY: Uh-huh.
BP: I used my priv-my private web space for hosting the technological environments,
DY: Mm-hm.
BP: ...and I may be have to found it useful if universities are more flexible in providing um, technical, let's say playgrounds.
DY: Mm-hm.
BP: Um, for example, my university at Dortmund provides um, wiki setup free for everybody. But I didn't have it at the other universities, at least not a few years ago like in Münster or in Hannover.
DY: Yeah.
BP: Um, so, I would like universities to... supply a real free playground for where you can install everything that you want and where you can host um, different applications. But that wasn 't quite easy because universities are quite eager to have their data protection and not to have viruses and everything in there,
DY: Yes.
BP: ...on their tools, um, so I prefer to have it on my own web space.
DY: Yeah. And could you please shortly evaluate eLearning in your scientific field? How are the attitudes of other lecturers towards eLearning and how is the use in general in your science? Do you have an idea?
BP: I would say it's rather low. Um, because in journalism and communication science people have a high opinion on face to face discussion, um...and I don't think that eLearning at the moment playing high role in my, my scientific subject (short sharp laugh).
DY: Mm-hm. And now I have my last question if a software or an electronic environment have to be established just for, for example, journalism and communication sciences, how would it look like, how would the eLearning platform look like for social sciences and what kind of features should it have?
BP: Mm. Mm. I think it should have a front-end um, where you can publicate, publish something.
DY: Mm-hm.
BP: Because journalism and communication sciences are about getting in the touch with your audience and about publishing something.
DY: Mm-hm.
BP: And, I can't imagine um...well, I can imagine eLearning without any producing something to publish. But I think, it's quite important to all you have to opportunity not to just learn in a theoretical way.
DY: Mm-hm.
BP: ...like, like, theories or whatever, but I would rather like to see a platform that also supports um, publishing.
DY: ...publishing (noting). Mm-hm. And, do you want to add anything to this interview? Because I'm (laughing) at the end of my questions.

BP: Mm.
DY: Is there anything that you would like to add or any question or you want to ask to me?
BP: Well, I have to say that my view is a quite specific one.
DY: mm-hm.
BP: Because I'm not into the traditional eLearning systems, we can learn, let's say, theory of communication or theory of society, or whatever.
DY: Yes.
BP: I think that might work with eLearning,
DY: mm-hm.
BP: ...because it's just another way of reading a theory or a book if you can read it on the computer like mobile-end structured eLearning. But the specific kind of lessons that I've stand for are always oriented towards um, producing something.
DY: Mm-hm.
BP: And, um, in this kind of lessons um, eLearning is just, just part of the work, and you always need it to blend with face-to-face trainings.
DY: Yeah. Mm-hm.
BP: I think that.
DY: Yeah, okay, um, then how did the interview feel for you in general?
BP: Well, okay.
DY: Okay. Thank you for you-your contribution to my PhD thesis and as soon as I'm finished I will send you a summary if you want.
BP: I-I would not- I would also be interested in getting your PhD thesis or an abstract.
-out of topic-
END OF TAPE 1 (1TAPE TOTAL).
END OF THE INTERVIEW.

Qualitative Semi-Structured Survey of Instructors' Perspectives on their own eLearning Practices

Name: Ulrik Schroeder

Title: Professor, Dr.-Ing.

Science: Computer Science

Position: Professor

Nationality: German

E-mail:schroeder@informatik.rwth-aachen.de

Part I Background

1. When did you begin to integrate eLearning in your teaching?
   Since about 20 years.
2. How many eLearning courses did you teach until now?
   Since 1992 (approx.)
3. How many eLearning courses do you have recently?
   This semester I teach 2 Blended Learning courses

PART II eLearning Experiences

4. Could you please share your experiences and describe the characteristics of one of your eLearning course?

- What was the type of **content** you preferred in your eLearning course?

  Lecture slides, copies and links to research papers, lecture recordings (slide casts), Wiki, Blog, document sharing of students during project work, videos, annotations and discussions of videos and other learning material

- What was your **aim/objective** in teaching with eLearning?

  Objective of using eLearning components: let the students become active during the semester, work on authentic problems

- How many students are enrolled in your eLearning course?

  Currently about 40 students in each of the classes. We also already taught classes with 200 sdtudents, 450 students, 600 students and 850 students

- What was the **didactical idea** behind your eLearning course?

Rather constructivist/social: open tasks, students choose their project work, can upload results and video and other material and discuss with a tutor

- What kind of **teaching and learning activities** did you integrate into your eLearning course?

  We do have instruction in lectures, we have accompanying project work, students share their results and also comment on peers, there are various forms of interaction, communication and collaboration. In general no WBT/CBT, no simulation.

- What kind of **media/tools** did you utilize in your eLearning course? How did you decide to use them?

  We are using the elearning platform of RWTH Aachen. L²P, which offers various tools for communication and collaboration within virtual lecture rooms.

- What kind of activities did you adapt in your eLearning course to enhance **communication and collaboration** between you and your students, and between students?

  Students work on their assignments and are also asked to comment on results of their peers

- Did students work **individually or within a group**?

  Mainly within groups

- How did you **evaluate the success or failure** of your students in your eLearning course? What was your including **criteria**?

  We have weekly sessions with the student groups during their project work, so we can evaluate their progress continually. Criteria are about conception, design, implementation of project tasks

- Did your eLearning course increase communication and collaboration between you and your students and between your students? If yes, How?

  Communication is largely enhanced, because we have all these interactive assignments, peer assessment, tutor assessment, students also produce videos to present their work. WE have a quick feed back survey after each lecture, which is also shared in the virtual class room …

5. What kind of **benefits** did you notice while teaching with eLearning?

Students are active learners, there is much more active participation, also discussion during lectures, quality of project work increases, because all the work is published, everybody can also see and evaluate the work of others

6. What kind of **challenges** did you notice while teaching with eLearning?

The same is true for me. Everything I teach is published. In preparation it is more work to find links and material which is made available to the students to work with. I have to read and evaluate a lot of material (project results).

7. What kind of **differences** did you notice while teaching with eLearning, in particular, compared with traditional instruction?

The way of preparing and teaching changes. I can become less active and have the students participate more actively (also present within lectures, discuss challenges and solutions).

8. Do you need any **support** while teaching with eLearning?
   - If yes, what kind of support do you need?

No.

9. Could you please shortly **evaluate the eLearning practices** in your subject-matter context?

eLearning in the field of CS is widely used as blended learning concept. There is not much WBT or simulations but a lot of communication and collaboration support, assignament and task workflow, some interactive tests, organizational support (group work, announcements, course organization).

10. If a software or an electronic environment have to be created just to enable eLearning in your subject-matter context, how would it look like? Could you please shortly describe such an environment?

AS described our platform L²P offers the functionality for cooperation and collaboration. What we could use is that specific other software (e.g. programming environments, modeling tools, etc.) can be integrated into the learning platform so that results and activities from these various tools could be automatically evaluated and used for assessment and feedback.

PART III Wrap Up Questions

11. Is there anything you would like to add?
12. Is there any question you may think that I should have asked?
13. How did the interview feel for you?

Too bad, that Skype did not work. I hope you can use my answers.

Participant ID: Dr. Jens Vogelgesang (JV)
Interview Name: Instructor Interviews
Short Biography: University instructor in the field of Communication Sciences at the University of Hohenheim
Site/Location: Skype VoIP
Date of Interview: 31/05/2012
Interviewer ID: Damla Yildirim (DY)
Transcriber: Damla Yildirim

START OF TAPE 1 (2 TAPES TOTAL)
(Out of topic)

DY: Okay, um..., do you agree with the record of the interview?
JV: Sorry?
DY: Do you hear me, rightly?
JV: Yeah, it's okay.
DY: Okay, do you agree with the record of the interview?
JV: Yeah, I do, of course.
DY: Okay, um, for how many years do you have a relation with eLearning?
JV: um, relation?
DY: Yes, for how many years do you conduct your lectures with eLearning, actually?
JV: Um..., I think I began in... two thousand...seven.
DY: Okay, 2007. Okay. How many electronic courses did you thought until now?
JV:...like blended learning or like...?
DY: Blended learning.
JV: ...or not showing up? So that the students don't show up like totally virtual actually or is it like you mean blended learning?
DY: Um..., it can be blended learning or it can be also full online learning, distance education. Both can be.
JV: Zeit..,when I began in two thousand...um, seven...seven, eight, nine, ten, eleven, twelve, um, times two is twenty four...and yeah, difficult.
DY: Twenty-four lectures.
JV: I teach two courses, per semester.
DY: Uh-huh. Okay.
JV: And, I always use um..., use this, um... eLearning system just like load up the course work,
DY: Uh-huh.
JV:...or something like that.
DY: How many courses do you have presently in the...?
JV: Um..., two.
DY: Yeah, each semester, two courses. So, could you please um, share your experiences and describe one of your eLearning course to me?
JV: Um, what I do there?
DY: Sorry?
JV: Shall I describe what I do there?
DY: Yes, yes.
JV: Hm...
DY: For example, what kind of content did you used there, what was your aim or objective, um..., during the, those courses.
JV: Yeah, well, um, the first place, well I use it for e-mail.
DY: Mm-hm.
JV: This is..., this is extremely important for me because um, then I don't have to gather all the e-mail addresses.
DY: Mm-hm.
JV: Um..., and um so the system provides all the e-mail addreses and I can use it for communication with my students. Um, this is very important to me. Um, secondly, um, I upload um, course material um, like the schedule of-of the semes-of the term.
DY: Mm-hm.
JV: And, in addition I also upload um, some of the-of the text which-which the student, students have to read. Sometimes when there is um, homework to do for the students um, they upload their homework,
DY: Yeah.
JV: So, I can download it, huh (short sharp laugh) in turn. Um, sometimes I do, I do surveys.
DY: Surveys.

JV: But only sometimes, when it benefits.
DY: Mm-hm.
JV: And, yeah I think that's it. And yeah!, and I always upload my slides when-when I give a lecture.
DY: Mm-hm. Okay.
JV: Yeah.
DY: Um, do you do them on a specific learning management system like Moodle or...?
JV: Um, when I was at free university, it was called FIONA, nice thing.
DY: Mm-hm.
JV: And, here, it is Ilias.
DY: Ilias, mm-hm. And you do all your eLearning work over Ilias?
JV: Yeah, currently, yes.
DY: Yeah.
JV: I always used the system which is provided by the-by my host university.
DY: Mm-hm. You mentioned teaching and learning activities, do you want to add something for example, you said may be surveys, I, they upload their homwork and I can check them. Do you want to, are you doing any different kind of teaching and learning activity on Ilias or?
JV: No,
DY: No.
JV:...no, I don't (phone ring). Um, just wait a second I just take the phone call.
-out of topic-
JV: Sorry!
DY: Okay, no problems. So you use the eLearning somekind of a blended learning environment, right?
(Sound break)
END OF TAPE 1.
START OF TAPE 2. (2 TAPES TOTAL)
DY: So...!
JV: Sorry, my wi-fi is like.
DY: Okay, okay (short sharp laugh).
JV: ...was totally down.
DY: No problems. Okay. Um, I was asking if you are using eLearning somekind of a blended learning environment ?
JV: In a blended learning environment?
DY: Or only for document sharing?
JV: Yeah.
DY: Oh! Okay. Do you do something to enhance communication and collaboration between your ....
JV: Yeah, well...
DY:....students?
JV: Sorry, to interrupt you. I once did a chat discussion with my students.
DY: Uh-huh.
JV: But it turned out to be like impossible.
DY: Why?
JV: Yeah....we, there were like six students.
DY: Uh-huh!
JV: And, if you do it only by-by-by chat you always have to be sure that now everybody has-has made his contribution.
DY: Mm-hm.
JV: So, student A, have you anything to add, student B, have you anytthing to add?, student C, have you anything to add? So, I went totally mad. Um, and , um, and, to me um, this, is no tool or instrument which I can really use in my coursework.
DY: Mm-hm.
JV: So...
DY: And this was because of you mean, the students were shy to add something?
JV: Like what fighting?
DY: You mean like the students were shy to add something during the chat sessions.
JV: No, not shy but I, you know when you have an argument,
DY: Yeah...,
JV: ...you make an argument, you have to give everyone, everyone, the opportunity to contribute on that. But since I couldn't see their faces like nodding, nodding, like nodding that was impossible so, if you are in a room together, so I just can scan look around and nobody have something to add, okay we can go to the next

argument. So it was always like meta communication about is it okay that we go on, is it not okay that we go on and it took a lot of time.
DY: Yes. You mean the lack of interpersonal communication.
JV: Yeah.
DY: atmosphere.
JV: Yeah, so, chat discussion, this was proposed by the system provider from Free University, just to give it a try. And I did, and it was a big failure to me.
DY: Yeah.
JV: Yeah. So, okay, let's go.
DY: Okay. What did you do to enhance communication adn collaboration between your students? Or, did you do something to enhance communication and collaboration?
JV: What did I do, sorry?
DY: Um, do you do something to enhance communcation and collaboration between your students?
JV: Ah!
DY: And, with you. Yeah.
JV: Yeah, well. Um, well, recently, I-I installed.....um, like a special environment for the people when they work together, for groups. In Ilias, there is a group function and this is kind of a virtual room where they interact without being seen by the others, by the others and they can provide material, for me without um, but the other students can't see what they are doing. So , this is some kind of collaboration environment which is provided by Ilias.
DY: Mm-hm.
JV: Yeah.
DY: Um, do you use any web 2.0 tools while using eLearning?
JV: What...web-web point?
DY: Web 2.0 tools web two point zero tools?
JV:No.
DY: No.
JV: No.
DY: Okay, did the students work individually or group work, within a group work?
JV: It depends on the course.
DY: Uh-huh. Okay.
JV: Well, currently, they do projects, research projects, so, they work together,
DY: Mm-hm.
JV:...in the winter term, they, this was a reading course, and they had to write different essays and everybody was working on his or her own.
DY: Mm-hm. Um, do you think that your eLearning course increased the communication and collaboration between you and your students?
JV: Um...
DY: with eLearning?
JV: Yeah, yeah, I know. Yeah, well, (short laugh), I think it enhanced m...my communication with them,
DY: Uh-huh.
JV: Because, I- I- I give more, so in the formal times, I wanted them to go to the library and I think nowadays, I do this work for them.
DY: Mm-hm.
JV: But I don't think that-that's really helpful (laugh).
DY: Okay. Um, you said...
JV: So they get used to to my service and they-they don't come up with the idea to go to the library um, on their own because okay, Jens is providing it, I'm happy.
DY: Uh-huh. Some kind of...
JV: I think it is a motivation thing.
DY: Yeah.
JV: So they have problems to-to to seek information on theirown.
DY: Mm-hm.
JV: So you have to make um, them familiar with with other techniques then downloading some pdf file from the learning environment system.
DY: ...system (noting). Yes, okay, you mentioned that you give homeworks to them via eLearning platform Ilias,
JV: Yeah.
DY:...and you want them to upload their works,
JV: Yeah.

DY:...and how do you evaluate the-them what's your evaluation criteria in evaluating such kind of a homework over eLearning atmosphere?
JV: Um, this is nothing to the with the channel like the eLearning environment so I download the paper and I just correct it and evaluated like it, when they would give me the paper work.
DY: Yeah, okay. Some kind of media you use eLearning but that's why it is not a, has not an effect on on your evaluation criteria.
JV:No.
DY: Yeah, okay.
JV: Not at all.
DY: Okay. Um, what kind of benefits did you notice while instructing with eLearning or while using eLearning?
JV: My benefits?
DY: Oh, um, okay, what kind of benefits did eLearning bring to your courses? I'm asking in this way.
JV: Mm...
DY: Or, is there any benefit brought to you?
JV: Yeah, I think, communication is much more easy, um, because, um, it is not that 'oh, I didn't get that e-mail and hm hm hm...' so, I can say, I upload this file tomorrow,
DY: Mm-hm.
JV: ....please download the file and read the pdf file.
DY: Mm-hm.
JV: And this is, this is very clear-cut.
DY: Okay.
JV: And, I think this is easy, so, um, tin the formal times when you just printed out articles and gave it to the library, they didn't know, w-where to look for it.
DY: Yeah.
JV: Well, where is it? Is it in room A? Is it in room B? No, it is in the Ilias, today. So, this-this makes um, things; I think communication is now, very easy.
DY: Yes.
JV: Um, yeah.
DY: Okay. And what kind of challenges did you notice?
JV: Talent?
DY: Challenges, Challenge...
JV: Challenges!
DY: Yeah.
JV: Yeah, I think I talked about it, um, the question before, they get used to this kind of service thing, doing um, yeah, provided by the lecturers, so they get lazy a little bit.
DY: They get lazy, okay (smiling).
JV: This is my impression, yeah.
DY: Okay, I have a question here but I don't know if you wish to answer it. What kind of differences did you notice while instructing with eLearning with regards to traditional learning environments?
JV: With regards to what? Sorry?
DY: What kind of differences did you notice while instructing with eLearning with regards to traditional learning environments?
JV: Um...
DY: ...if you want you can also skip the question.
JV: ...yeah, when I, I always talk about the homework in the last five minutes but I usually um, um, in addition, additionally write an e-mail, please remember I told you that you should do, do this like the evening after the, the course or the next day. So, I know that they are like after ninty minutes they are somewhat of tired and they don't get the idea of homework or something like that so I just repeat what I tell them in the last minutes by using e-mail.
DY: Mm-hm.
JV: So, um, that's it.
DY: Yeah, do you need any support by using eLearning? ....Any kind of technical or organizational support or I don't know?
JV: No...no.
DY: No.
JV: May be like sometimes, we once used the survey tool of the Fiona system, um, to do, um, to do research or to carry out a research project.
DY: Uh-huh.

JV: So we didn't, we didn't use um, um, special, um, data management, data management tool so we did like Excel to type in datas but we used the evaluation survey tool of Fiona.
DY: Uh-huh.
JV: And then, I-I asked the technical guide because there were some technical problems but usually I don't.
DY: Usually, you don't (noting).
JV: And, when I move from Berlin to Stuttgart Hohenheim, I'm and they have this different system, I really have no problems, I'm adapting to that system.
DY: Okay.
JV: So, they are extremely easy to use.
DY: But there is a eLearning center in Hohenheim university, right?
JV:Yeah.
DY: Yeah, yeah. They are helping in technical matters, organizational matters.
JV: Yeah.
DY: Okay. Could you please evaluate shortly eLearning in your scientific field? How the...do the eLearning is used via other lecturers and how is the current situation of eLearning for example, in communication sciences?
JV: Sorry?
DY: Can you shortly evaluate the situation of your, of eLearning in your own scientific discipline.
JV: Okay, um, if my colleagues do this?
DY: Yeah. How are the attitudes or how are the awareness levels, do you know something like that, any idea?
JV: Yeah, I think that it's a part of the ordinary work of my of-of communication um, of my communication sch-colleagues so this is, we don't talk about it because everybody doing it and this is kind of you just do it.
DY: Yeah.
JV: And students um, they are some kind of suprised if you don't use, um eLearning.
DY: Oh! Nice! (laughing).
JV: Yeah.
DY: Okay. If a software or an electronic environment have to be created just to enable eLearning in your own scientific field, how would it look like what kind of features should it have?
JV: If I should invent one?
DY: Um, if you should invent um, um, eLearning atmosphere, platform, a new platform just for communication sciences, how should it look like? What kind of feature does it have? Should it have?
JV: I really don't, sorry, I-I don't understand the question.
DY: So, we have to create an eLearning environment just for communication sciences (laughing), yeah fro example, what kind of features should it have? Or some kind of charactersitics? No idea?
JV: Yeah, I know what you want to know but um, I-I understand, um, I don't think that there is something special but communication research in that terms um, no, you have this e-mail function, you can upload as much as videos as you want, um, unless they are like not about a hundred, I don't know the what the system um, currently um, ...has to offer, no I don't think so.
DY: For example...
JV: May be, may be the students, may, well I just, the students wouldn't, would not be interested in web 2.0 things. Because they do Facebook.
DY: Hm...
JV: What I once thought about using facebook as a eLearning tool because they are already there and they do their communication about um, '...okay, Jens Vogelgesang is, don't go on Tuesday to the university!'...and things like that.
DY: Uh-huh.
JV: Um, they do their communication within Facebook so sometimes I think okay, I have just to provide um, a Facebook environment and everybody would be there, yeah, and would like, would be, would be not another system.
DY: Mm-hm.
JV: You know?
DY: Yeah.
JV: But, actually it is not a problem people, every student from the first semster on is part of Ilias, and so, it is not really, yeah, it's okay.
DY: Um, is there anything you would like to add to this interview?
JV: No.
DY: Okay, is there any question that you think that I should have asked? in terms of this?
JV: Um, ah, you could have asked if I ever visited a course on using eLearning.
DY: Mm-hm.
JV: Yeah, Because I did (laughing).

DY: (laughing)...did you ever...
JV: They introduced the system at three university,
DY: Uh-huh.
JV:...they offered courses to-to me with the system and I think um, when when, some colleagues of mine, when they began to work as a researcher assistant or something like that they also do the- the –course like three hour course or something like that where you are introduced to the system. So, um, yeah because I think nowadays um, former students are familiar with the system and when they become a researcher it is nothing new to them.
DY: Yeah.
JV: So there is no, there is no eLearning divide anymore. You know,
DY: Mm-hm.
JV:... so, that like me the old generation who not grow up with such a system we-we we have to be taught how to do it but I think nowadays this is not required anymore.
DY: Yes.
JV: Yeah.
DY: And how did the interview feel for you?
JV: Um, it was okay, my english is bad but...
DY: No, no ...
-out of topic-
END OF TAPE 2 (2 TAPES TOTAL)
END OF THE INTERVIEW.

Qualitative Semi-Structured Survey of Instructors' Perspectives on their own eLearning Practices

Name: Heike Wiesner

Title: Prof. Dr.

Science: business informatics

Position: Prof.

Nationality: german

E-mail:wiesner@hwr-berlin.de

Part I Background

1. When did you begin to integrate eLearning in your teaching?
   Wiesner " Many many years, because it is a great interdisciplinary field with very interesting researcher. October 1999 I have worked for the University of Kiel, I have done a study with experts in the area of eLearning. It was a BMBF- Project. The title of the study: "Gender and Information technology in context of the ifu (international women university)". This study was the beginning of my research focus in the area of eLearning."

2. How many eLearning courses did you teach until now?
3. How many eLearning courses do you have recently?

   Wiesner: "I prefer blended learning courses, because the drop out quote in online courses is very high. I have never count these kinds of courses but I try to integrate in every lecture a small online phase."

PART II eLearning Experiences

4. Could you please share your experiences and describe the characteristics of one of your eLearning course?
   - What was the type of **content** you preferred in your eLearning course?
   - What was your **aim/objective** in teaching with eLearning?
   - How many students are enrolled in your eLearning course?
   - What was the **didactical idea** behind your eLearning course?
   - What kind of **teaching and learning activities** did you integrate into your eLearning course?
   - What kind of **media/tools** did you utilize in your eLearning course? How did you decide to use them?
   - What kind of activities did you adapt in your eLearning course to enhance **communication and collaboration** between you and your students, and between students?
   - Did students work **individually or within a group**?
   - How did you **evaluate the success or failure** of your students in your eLearning course? What was your including **criteria**?
   - Did your eLearning course increase communication and collaboration between you and your students and between your students? If yes, How?

     Wiesner: " In one of my courses (business informatics; 23 students) the students have to produce an own learning module in moodle. At first they have to organize their group (no more than 4 students per group) and worked out a guideline in a project. The project is in the field of

business informatics, for example Intranet, CRM =Customer relation management, Web 2.0, eBusiness, eGovernment, RFID, Wikis, etc. The students should work out their own theme. Then we start with a moodle workshop (1day). So they are able to work out their own learning module in the learning platform moodle. Now the online phase starts, because they get all information and instructions through the moodle system. To the end of the project phase I have with every group a coaching date. After this target date the groups work alone until the results have to be presented."

Learning through teaching is the didactical concept. The learning theory/method is a mixture between problem based learning (PBL) and constructive method (project). The group activities get formed behind the moodle system and wikis, foren and blogs. One aim is to learn how open software works in and for business processes."

Extern evaluation through the HWR.

5. What kind of **benefits** did you notice while teaching with eLearning?

6. What kind of **challenges** did you notice while teaching with eLearning?
7. What kind of **differences** did you notice while teaching with eLearning, in particular, compared with traditional instruction?
8. Do you need any **support** while teaching with eLearning?
   - If yes, what kind of support do you need?
9. Could you please shortly **evaluate the eLearning practices** in your subject-matter context?
10. If a software or an electronic environment have to be created just to enable eLearning in your subject-matter context, how would it look like? Could you please shortly describe such an environment?

Wiesner: "When the groups work with a wiki, I can see differences between the female and the male students. Tendency the female students work much more in the wiki than the male students. But with the tool I am able to control the male students. Their results improve when I encourage them in their learning processes. So wikis are good for both sexes."

PART III Wrap Up Questions

11. Is there anything you would like to add?
12. Is there any question you may think that I should have asked?
13. How did the interview feel for you?

Wiesner: "Web 2.0 changes learning processes and has a democratic and diversity oriented input in organizations."

Good luck!

Prof. Dr. Heike Wiesner (HWR Berlin)

7.2. Codebooks

7.3.1. Codebook Categories and Subcategories – eLearning Experts

CATEGORIES	SUBCATEGORIES	#
[1] **SUBJECT-MATTER CONTEXT OF HUMANITIES/SOCIAL SCIENCES (SS)**	***Given importance to interpretation, collaboration, discussion and interaction***	***4***
	Use of sophisticated learning technologies	***2***
	Resistance to eLearning	
	Sociology like subjects are ready to embrace eLearning	
	High level eLearning is not put into practice, yet	
	Emphasis on improvement of quality of teaching and learning	
	Connected working all around the world	
	The development of student behavior is important than technology	
	SS have complex structures	
[2] **SUBJECT-MATTER CONTEXT OF ENGINEERING SCIENCES (ES)**	***Based on facts, problems & formulas***	***2***
	More focus on research and development	
	Classical lectures are popular	
	Discussion and interaction is not so important	
	No interest on the development of human behavior	
	No need for regular meetings	
[3] **BELIEF IN A DIFFERENCE BETWEEN ES & SS**	***There is a difference***	***5***
	No strong borders	***2***
	Contextual differences	***2***
	Content differences	***2***
	Media literacy and competence differences	***2***
	Differences can be elaborated into subjects and the institutions	
	Application differences	
	Lecturer differences	
	Focal differences	
	ES have more a technical, less didactical standpoint	
	SS have more didactical, less technical standpoint	
	ES build their own tools	
	SS use what university offers	
	SS have more discussion based learning	
	ES have more facts based learning	
[4] **BENEFIT FOR SS**	***Communication***	***4***
	Creation of learning communities and networking	***3***
	Activation of student groups	***2***
	Collaboration	***2***
	Socialization of man	
	Share	
	Having an open participatory process	
	New methodological insights	
	eLearning as converter of classical lectures	

	Use of simulations in project management *New didactical impulses as constructive scenarios* *Chance to learn your students from different sides* *Improvement of quality in teaching and learning* *Supporting of process and the management aspect of learning*	
[5] BENEFIT FOR ES	***Power of visualizations*** ***Flexibility & Mobility*** ***Remote / virtual labs*** *Simulation* *Ease of creating remote labs via web 2.0* *Open source* *eAssessment* *Reflection* *Collaboration* *Possible environment for sophisticated experiments* *Independent learning and teaching activities* *Keeping up with technological developments* *Ease of document sharing* *Chance to learn your students from different sides* *Improvement of quality in teaching and learning* *Creating an added-value for ES* *Focus research > teaching*	***4*** ***4*** ***2***
[6] BENEFIT FOR ORGANIZATIONS	*Reducing costs* *Competing with other higher education institutions* *Keeping up with technology*	
[7] CHALLENGE FOR SS	***Difficulty in handling technology*** *eLearning paradox - Wide variety of tools, lack of didactical considerations* *Comparison of traditional learning with eLearning* *Resistance to eLearning by traditional institutions* *Lack of technical knowledge and resources* *Use of tools what university offers* *What university offers is not attention getting* *Hard to visualize complex structures* *More discussion on didactics rather than technology* *Lack of extra verbal cues in online communication* *Need for more time* *More interest on using technologies rather than developing content* *Comparison of traditional learning with eLearning*	***2***

[8] CHALLENGE FOR ES	***Weak didactical considerations***	***2***
	Hard to reflect upon a social technology web 2.0	
	Understand of eLearning only as a technical point of view	
	Need to train universities about eLearning	
	Higher costs of production	
	Need for more time	
	Comparison of traditional learning with eLearning	
[9] CHALLENGES OF ELEARNING	*Senior researchers difficulty in implementing eLearning*	
[10] CHALLENGE FOR ORGANIZATIONS	*High value eLearning do not reduce costs*	
	Danger of using social networks – cyber bullying	
[11] eLEARNING TOOLS FOR SS	***LMSs – Moodle x3, Ilias – forums , chats***	***6***
	Web 2.0	***4***
	Social networks (Facebook x1, Linkedin x1,	***4***
	Twitter x1, Mixxt x1)	***4***
	Wiki	***3***
	Podcasts	***2***
	Blogs	
	Online communities	
	Cloudworks	
	Student generated web tools	
	Authoring tools	
	Technology enhanced learning is for all sciences	***2***
	Desire to be free of any obligation to use in instructions	
	Preference of using easier tools	
	What university offers is used	
	SS don't have the resources and technical knowledge	
	Multi-purpose tools	
[12] eLEARNING TOOLS FOR ES	***eAssessment & Content & knowledge***	***6***
	management systems	***5***
	Visualizations – Simulations & Remote labs	***2***
	ES build their own tools	***2***
	Technology enhanced learning is for all sciences	
	Open educational resources - Khan Academy	
	LMS forum, wiki	
	Web 1.0 - HTML pages, pages of links	
	Web 2.0 - Wikis, blogs, & netvibes (not so common)	
	Special tools	
	No specific tools	

[13] eLEARNING SCENARIOS IN SS	***Blended learning***	***4***
	Document sharing	***2***
	No real scenarios	***2***
	Communicative learning	
	Every scenario is realizable in context that are defined by learner characteristics	
	Collaboration based learning	
	Problem based learning	
	Reflective learning	
	eLearning scenarions are dependent on the goals and the structure of the content	
	Needs time for setting new scenarios	
	LMS as a playground for active teacher groups	
[14] ELEARNING SCENARIOS IN ES	***Offline learning - classroom presentation***	***3***
	Document sharing	***3***
	Simuation based learning	***3***
	Lab based learning	***2***
	Project based learning	***2***
	Every scenario is realizable in context that are defined by learner characteristics	
	eLearning scenarions are dependent on the goals and the structure of the content	
	No real scenarios	
	Needs time for setting new scenarios	
	Problem based learning	
	Lack of educational scenarios	
[15] SOCIAL FORMS IN SS	***Both individual and group forms***	***3***
	Individiual work	***2***
	Buttom-up approach – Decided by students according to their needs	***3*** ***2***
	Task of the lecturer, learner characteristics, dependent on the learning objectives	
	Group work	
	SS are more aware of communicative needs	
	Social Forms are not dependent on specific fields	
[16] SOCIAL FORMS IN ES	***Both individual and group forms***	***4***
	Task of the lecturer, learner characteristics	***2***
	Dependent on what form is needed to solve the current problem, handle the issue etc...	
	Group work	
	Individual work	
	Bottom-up approach	
	ES are not much communicative	
	Social Forms are not dependent on specific fields	
	Independent from online or offline scenarios	
	Need for group work in ES because of the augmenting number of students	

[17] A BETTER ELEARNING ENVIRONMENT FOR SS	***Social network – A Facebook like environment***	***2***
	Dependent on the teaching goals special functionalities of web 2.0	***2***
	Emphasis on communication	
	Data exchange	
	Self-representation	
	Online communities	
	Lab of ePortfolio	
	Mobility	
	Employability	
	Personal learning environment	
	Guidance	
	Personal reflection	
	Combination of various applications	
	Tracking of the results	
	Virtual learning environment including wide variety of universities in a region	
	Collection of courses & materials	
	Communication spaces	
	No need for big systems, web is enough	
	Need for a change in behavior	
	Need to change the look and feel of big LMSs	
	Giving the chance to the students to have more fun with the learning object	
	Realization of new education scenarios	
	Creation of an added value	
	Increase of the efficacy of teaching and learning processes	
[18] A BETTER ELEARNING ENVIRONMENT FOR ES	***No need for big systems, web is enough***	***2***
	A Facebook like environment where it's easy to acquire knowledge through networking	
	Less emphasis on self-representation, networks and communities	
	Exchange of huge amounts of data	
	Secure connections	
	Possibility to be anonymous	
	Advanced possibilities for simulation & plug-ins	
	Lab of ePortfolio	
	Mobility	
	Employability	
	Personal learning environment	
	Guidance	
	Personal reflection	
	Combination of various applications	
	Tracking of the results	
	Added features to the virtual learning environment such as technological functions that enable visualizations	
	Dependent on the teaching goal sophisticated tools as remote labs	
	Web 2.0 for collaboration	
	Need for a change in behavior - ES are sophisticated to create a change in behavior	
	Need to change the look and feel of big LMSs	
	More use of web based technologies	

	Giving the chance to the students to have more fun with the learning object *Realization of new education scenarios* *Creation of an added value* *Increase of the efficacy of teaching and learning processes*	
[19] SUITABILITY OF ELEARNING	***Suitable for both*** *Dependent on teaching goal, competences, & learning outcomes a course wants to achieve* *Scientific contexts are diverse* *SS is more open minded*	***8***
[20] QUESTION TO LECTURERS	*What is your impression about eLearning with respect to your teaching area?* *What is the weakest part of your teaching and do you think is there a chance to improve that part with the help of eLearning?* *What support do you need with regards to your workload?* *How eLearning science, research & practice are related with each other?* *Open question which makes lecturers who uses eLearning to describe their courses.* *Whether the lecturers are competent in instructional design or not?* *Can one release eLearning in any type of higher education institution?* *Are you ready and have time to use eLearning in your courses?* *How do you motivate your students?*	
[21]IMPORTANCE OF COMMUNICATION & COLLABORATION IN SS	***Societal change has been creating a shift in education*** ***Learning occurs via communication & collaboration*** *For constructive learning to take place* *Social sciences are not based on facts, mostly rely on discussion, interpretation, sharing of knowledge and getting in contact with each other*	*2* *2*
[22] IMPORTANCE OF COMMUNICATION & COLLABORATION IN ES	***Societal change has been creating a shift in education*** ***Learning occurs via communication & collaboration*** *Collaboration as the key point for CREATION* *ES give more importance on collaboration than*	***2*** ***2***

	SS *Communication and collaboration have not so much power in ES like in SS* *People interact to help each other* *Additional workload for the lecturers* *Discussing in ES are not important as in SS. However, working together is crucial*	
[23] **DECISION UNITS ON TECHNOLOGY USE**	*Buttom-up approach* *Top down approach*	
[24] **ORGANIZATIONAL SUPPORT**	*Support of top management* *Fear of lecturers*	
[25] **MEANING OF ELEARNING**	*Primarily knowledge management, document management* *Simulation* *Fostering comunication and collaboration*	
[26] **POTENTIAL OF YOUNGER GENERATION**	*Potential of younger generation to use eLearning is higher*	
[27] **ELEARNING PARADOX**	*Wide variety of tools, lack of educational design*	
[28] **COMPLEXITY OF THE TERM INSTRUCTIONAL MEDIA / TOOLS**	***Being not sure of what is asked under instructional media / tools of eLearning***	***2***
[29] **EVALUATION IN ES**	*Examinations and assessments with innovation technologies*	

7.3.2. Codebook Categories and Subcategories – Humanities/Social Sciences' Lecturers

CATEGORIES	SUBCATEGORIES	#
[1] FIELD OF STUDY	*Humanities/Social Sciences (SS)*	*6*
[2] NAME OF THE COURSE	*Quantitative Research Methods* *Web 2.0 and the society* *eBusiness management* *Descartes Meditations* *Journalism*	
[3] AIM OF THE COURSE	*Developing an understanding of eBusiness strategies and application of reconstructed knowledge to practice of eBusiness* *Social media effects on society* *Get to know web 2.0 tools* *Create opinion about web 2.0 tools* *Apply web 2.0 tools for different purposes* *How open software works in and for business processes* *Interpretation of philosophical text* *Use of electronic (digital) devices in the dissemination of news*	
[4] TYPE OF CONTENT	**Theoretical** **Practical**	**3** **2**
[5] LEARNING THEORY	**Cognitivism** **Constructivism** **Social constructivism** **Social learning**	**2** **4** **1** **1**
[6] BENEFIT OF eLEARNING	***Flexibility and mobility*** *Reusability of learning objects* *Ease of organization of documents* *Ease of sharing documents* *Ease of course organization* *Ease of connection, communication & organization* *Students like to get information from multi channels* *Online communication* *Document exchange* *Change of thinking about learning* *Dynamic, developing, interesting environment for lecturer to experiment* *Keep track of arguments* *Organization of arguments* *Follow-up of arguments* *Need for reconstruction of arguments*	***2***

	Collaborative reconstruction of arguments *Trainning students in the context and place where they will perform their future jobs.*	
[7] CHALLENGE OF eLEARNING	***Consideration of capacities and resources*** ***Unmotivated students*** ***Time for organization of eLearning*** ***Increased workload for instructors*** *New tools need additional time to be accepted* *Need for technical knowledge to realize sophisticated didactical scenarios* *Need for didactical know-how and experience* *Problem to self-research of information* *Hard to get the impression of both students and lecturers online* *Validity of web 2.0* *No real challenges - Opportunuties rather than challenges* *Having online discussions*	***3*** ***3*** ***2*** ***2***
[8] DIFFERENCE BETWEEN eLEARNING AND TRADITIONAL CLASSROOM	*Difference between professional schools and universities* *Notification through online environments* *Gender differences*	
[9] NEED FOR SUPPORT	***Need for technical support*** ***No need for support*** ***Support of the universities*** *Need for didactical support* *On-demand eLearning Tutor* *Student asistance for communication, sharing and organization of content*	***3*** ***3*** ***2***
[10] EVALUATION OF eLEARNING IN SS	***Ordinary work*** *50% - 50%* *Active group – got resources from the university* *Passive group – using eLearning as document sharing* *Two folded attitudes, explorative & ressistive* *Lack of technical know-how of older individuals* *Higher technical know-how of younger individuals* *Didactical considerations over technical considerations* *Preference of research > teaching (in practice)* *The most see it useful* *Resistance of older professors* *Higher demands to use eLearning from students* *Experimenting different technologies* *Tools are used that are offered by the university* *University offers less usable platforms* *Learning management systems used widely to organize seminars, to have an eMail list, to share documents.*	***2***

	eLearning do not play an important role in SS	
[11] eLEARNING TOOLS	***LMS – Moodle, Ilias, Blackboard, Stud.IP***	***4***
	Web 2.0 – Wordpress, Twitter, ePortfolios, Storify, Podcasts, Blog, Wiki, Netvibes, Social bookmarks, Joomla, Wikipedia and other possible web 2.0 tools students want to use	***3***
	Adobe Connect	***2***
	Wikis & Fora	
	Do.IT integrated tool in Stud.IP for organization of groups and the course	
	Use of tools provided by the university	
	Argumentation software	
[12] eLEARNING SCENARIOS	***Blended learning***	***6***
	Project based learning	***4***
	Self-reflective learning	***4***
	Document Exchange	
	Discussion based learning	***3***
	Collaborative learning	***3***
	Problem based learning	***2***
	Self-study	***2***
	Inquiry based learning	***2***
	Communicative learning	
	Rarely survey based learning	
	Blended learning	
	Case based learning	
	Learning by teaching	
	Collaborative learning	
	Document sharing	
	Hands on trainning	
[13] SOCIAL FORMS IN SS	***Group work***	**5**
	Both	**2**
	Individual work	
[14] ENHANCEMENT OF COMMUNICATION AND COLLABORATION	***Different ways via LMS***	***3***
	Stud.IP	
	Do.IT	
	eMail	
	Students did not like	
	Chat but not satisfied - Lack of interpersonal communication	
	Anonymous interaction via virtual rooms on Ilias	
	Group blog	
	Twitter stream	
	Collaboration & communication through web 2.0	
	Through argumentation software	
	Offline communication	
[15] EVALUATION OF THE	***No evaluations based on the performances on eLearning***	***3*** ***3***

SUCCESS OR FAILURE	***Self-reflection***	***3***
	Final outcome of group work	***2***
	Achievement pf individual learning goals	***2***
	Evaluation of learning progress	
	Creativity	
	eLearning just for distribution	
	Presentation of the last argument maps by groups	
[16] A BETTER eLEARNING ENVIRONMENT FOR SS	***Should have plug-ins such as Dropbox, or a cloud, web 2.0***	***3***
	A platform like Facebook	***2***
	No need for additional softwares	***2***
	Virtual eLearning tutor responsible from technical, didactical and organizational matters.	
	Unclarity of the term eLearning	
	Personal Learning Environments (PLEs)	
	Based on constructivism	
	Argumentation software plugged in any eLearning platform - where reconstruction, organization, archieving and visual presentation of thoughts are needed.	
	Like all common platforms	
	Need for didactical consideration rather than technological	

7.3.3. Codebook Categories and Subcategories – Engineering Sciences' Lecturers

CATEGORIES	SUBCATEGORIES	#
[1] FIELD OF STUDY	*Engineering Sciences (ES)*	***3***
[2] NAME OF THE COURSE	*Torsion and the Lateral Torsion of Buckling*	
	Production, fabrication and erection of steel structures	
	Communication I	
[3] AIM OF THE COURSE	*Active learning*	
	To identify the production of the steel structures	
[4] TYPE OF CONTENT	**Theoretical**	**2**
	Practical	**1**
	Theoretical & Practical	**1**
[5] LEARNING THEORY	**Behaviorism**	**2**
	Cognitivism	**2**
	Constructivism	**2**
	Social constructivism	
[6] BENEFIT OF eLEARNING	*Active and open learning*	

	Lecture recordings *Flexibility and mobility for students and lecturers* *Just-in-time information for students* *Reducing the workload of lecturers*	
[7] CHALLENGE OF eLEARNING	***Less number of students attending physical lectures*** *Intellectual property rights* *Increased workload* *Technical challenges* *Lack of personal interaction*	***2***
[8] DIFFERENCE BETWEEN eLEARNING AND TRADITIONAL CLASSROOM	*Student centered learning* *Instructor as supervisor* *Students tendency to do lectures at their own pace* *Students expectance of rapid feedback*	
[9] NEED FOR SUPPORT	*No need for support* *Need for technical support* *Need for a successful eLearning center* *Assistance of student teachers/assistance*	
[10] EVALUATION OF eLEARNING IN ES	*eLearning used as blended learning* *Less WBT/CBT and simulations* *Providing lecture materials & using discussion forums* *Strong communication and collaboration support* *Good organization opportunuties* *Not so much active colleagues* *Preference of research > teaching* *Students demand to use eLearning*	
[11] eLEARNING TOOLS	***LMS – L²P, Moodle*** ***Wiki*** *Lecture slides* *List of links* *Blog* *Document exchange* *Video annotations* *Forum* *No WBT / CBT* *No simulation* *Web 2.0* ***Wikipedia*** ***Lecture recordings*** *Camtasia* *Lecturnity* *Registration tools* *Web app 'Imago'*	***4*** ***2*** ***2*** ***2***
[12] eLEARNING	***Blended learning*** ***Lecture recordings***	***3*** ***2***

SCENARIOS	***Collaborative learning*** *Project based learning* *Participative learning* *Self-study* *Offline presentation*	***2***
[13] SOCIAL FORMS IN ES	**Individual work** ***Group work*** *Both*	**2** **2**
[14] ENHANCEMENT OF COMMUNICATION AND COLLABORATION	***LMS*** *Peer communication* *Interactive assignments* *Feedback* *Virtual classroom* *eMail* *Wiki*	***2***
[15] EVALUATION OF THE SUCCESS OR FAILURE	***Conception, design, implementation of project tasks of groups each week*** *No evaluation is possible on constructive learning environments* *Comparison of exam results between students attending lectures in TU Darmstadt and foreign students who have no contact with TU Darmstadt (no significant difference phenomenon)* *Bonus for the exam* *Comparison of participation in the system and the exam grades*	***2***
[16] A BETTER eLEARNING ENVIRONMENT FOR ES	*Featured plug-in add-ons to current LMS* *No need for a better environment* *If necessary own tools can be developed and used according to the specific need and demands*	

7.3.4. Codebook Categories and Subcategories – Experience Reports on Humanities/social sciences' Subject-Matter Contexts

CATEGORIES	SUBCATEGORIES	#
[1] FIELD OF STUDY	*Humanities/Social Sciences (SS)*	***10***
[2] AIM OF THE COURSE	*Job trainning* *Self-study* *Replacement of present lectures by lecture recordings* *More concentration on lectures* *Research seminar to get familiar with pedagogical principles while teaching and learning with SL* *To become familiar with middle ages* *To build and construct a middle ages town*	

	To understand learning and the transfer of knowledge with digital media	
[3] TYPE OF CONTENT	***Theoretical***	***2***
[4] LEARNING THEORY	*Cognitivism* *Constructivism* *Connectivism*	
[5] BENEFIT OF eLEARNING	*Flexibility* *Interaction & engagement*	
[6] CHALLENGE OF eLEARNING	*Technical knowledge* *Complex usability* *Online communication creates high workloads for lecturers*	
[7] EVALUATION OF ELEARNING IN SS	***A shift can be possible with a change in the teacher attitudes***	***2***
	Resistant	
	Different attitudes from different levels of learners	
	Need for more open application of eLearning	
	Lack of web 2.0 integration	
	According to students;	
	Attractivity of web 2.0 tools - imbalanced	
	High user percentages of web 2.0	
[8] eLEARNING TOOLS	*Web 2.0*	
	Second Life	***6***
	Sandbox	
	Teamspeak	***2***
	Online support	
	LMS	***2***
	Chat	
	Self-tests	
	Discussion forums	
	Wiki	***3***
	Web 2.0 by students (freqently used)	
	MindManager	
	HTML	
	Glossary	***2***
	Yahoo! Pipes	
	Mash-ups	
	RSS feeds	
	On demand lecture recordings with own player	
	Web 2.0 by students (rarely used)	
	Open communities	
	Messenger services	
	Video communities	
	Video conference services	
	Foto & graphic services	

	Business Networks ***Blogs*** ***Bookmarkings*** *Note services* "encyclop@diatheologica – online dictionary" Virtual learning room *PLE –Texts, pictures, video sequences*	 ***2*** ***2***
[9] eLEARNING SCENARIOS	***Blended Learning*** ***Self learning / self study*** *Trainning based learning*	***5*** ***4***
[10] SOCIAL FORMS	**Group work** Individual work Both	**2**
[11] ENHANCEMENT OF COMMUNICATION AND COLLABORATION	**Team Speak** **Second Life for live interaction** Web 2.0 *Difference between novice and experienced students* *Used for knowledge structuring processes* *Conflict discussions* *Online communication*	***2*** ***2***
[12] A BETTER ELEARNING ENVIRONMENT FOR SS	*Need to promote eLearning*	

7.3.5. Codebook Categories and Subcategories – Experience Reports on Engineering Sciences' Subject-Matter Contexts

CATEGORIES	SUBCATEGORIES	#
[1] FIELD OF STUDY	*Engineering Sciences (ES)*	***3***
[2] AIM OF THE COURSE	*To enhance mathematical skills of students* *To balance knowledge levels of students coming from diverse schools* *To make students intensively work with CSCW* *To get familiar with the facts, concepts and tools of the course* *Visualization*	
[3] BENEFIT OF eLEARNING	*Combination of real experiments with virtual ones creates a better understanding for students in ES* *Online synchronous learning as a substitute of traditional learning* *Increase in the technological skills of students* *Ease of self-representation* *Increased communication processes with the help of avatars*	

[4] CHALLENGE OF eLEARNING	*Hard to visualize sophisticated items*
[5] DIFFERENCE BETWEEN eLEARNING AND TRADITIONAL CLASSROOM	*Virtual laboratories do not show exact results, there are some deviations in small fields* *Good text books have high resolution visuals, too*
[6] NEED FOR SUPPORT	*No need for support* *Need for technical support* *Need for a successful eLearning center* *Assistance of student teachers/assistance*
[7] eLEARNING TOOLS	*Ilias LMS* *Self-test* *Vitero - Virtual classroom* *Virtual & remote labs* *VideoEasel* *Labview*
[8] eLEARNING SCENARIOS	*Self-study* *Online synchronous learning* *Blended learning* *Collaborative learning* *Project based learning* *Trainning based learning* *Cooperative learning* *Simulation based learning* *Experiment based learning*
[9] SOCIAL FORMS	*Group work*
[10] ENHANCEMENT OF COMMUNICATION AND COLLABORATION	*Immediate feedback*
[11] EVALUATION OF THE SUCCESS OR FAILURE	*Statistical results on Ilias LMS*

7.4. Summary of Experience Reports

In this section, eLearning experience reports from engineering sciences' and humanities/social sciences are presented in a review of literature to demonstrate how eLearning theory is implemented in practice in German speaking countries.

First of all, as it can be observed from the interviews of the lecturers from engineering sciences'' and humanities/social sciences' subject-matter contexts, lecturers use eLearning mainly for document sharing and for communicating more easily in an organized environment. There are different uses of eLearning which are considerably sophisticated; however, the number of sophisticated practices are less than the overall application of eLearning (document sharing & course organization). This appendix is embedded into this dissertation in order to give extra perspectives about the practice-oriented approach of eLearning in humanities/social sciences' and engineering sciences' subject-matter contexts.

7.4.1. eLearning in Theology in Faculty of Theology at HU Berlin

In terms of theological studies in Germany, one can say that there are really few universities that use eLearning and especially web 2.0 learning in their teaching and learning activities.

Charbonnier (2011) states that this problem is because of the nature and structure of the theology faculties where the courses are implemented generally in a teacher-centered focus. However, there is one example which is presented by Charbonnier (2011) in his own teaching practice. In the course of practical theological teaching, Charbonnier (2011) used a tool called as "encyclop@diatheologica" which is as an online dictionary for theological terms and concepts. He used this tool for the revision course of practical theology that is organized as a blended learning course to empower and support self-study and self-managed learning.

Moodle learning management system is used and tools such as wikis, glossary, social bookmarking, chat, self-tests, and discussion forums are used to provide a plenty of resources. Furthermore, a virtual learning room was created to enhance creativity of students which have increased the student motivation to participate and engage wth the course.

Communicative and collaborative environments are used to make students structure their own knowledge. Indeed, Charbonnier (2011) mentions that this

course has fullfilled the aim of theological education with the help of conflict discussions, and discourses. Moreover, online communication is preferred way of communication. Charbonnier (2011) indicates that online communication significantly increases the workload of lecturers.

Students preferred to use the glossary feature of Moodle. Charbonnier (2011) states that the students are able to write articles on the facts and terms that they have in the glossary and they are able to comment each other's articles, too, where it is impossible to do it in a traditional theology class. Indeed, he added that there is no engagement of students in traditional theology classes.

In conclusion, the lecturers were not so influenced within the first practices of eLearning use in Theology. In fact, Charbonnier (2011) points out the need to promote eLearning to lecturers and students for a wider use. But, he concluded that at least, he created a curiosity to use eLearning in Theology (cf. Charbonnier, 2011).

7.4.2. eLearning in Business Information Systems (BIS) at University of Erlangen Nürnberg

Calmbach (2010) prepared an experience report on the use of "Lecture on Demand" recordings in the subject-matter context of business information systems (BIS). 419 students have participated in his longitudinal study (2008-2010).

According to the results, students often use web 2.0 applications such as open communities, messenger services, video communities, and video conference services. In contrast, they rarely use collaborative services, foto&graphic services, business networks, blogs, bookmarkings, and note services.

Calmbach (2010) stated that constructivist and connectivist epistemologies are integrated while designing the lecture recordings and online player features. 40% of students studying BIS find web 2.0 tools attractive and 60% of students studying BIS find web 2.0 tools not so attractive. However, 83% of BIS students are intensive user of web 2.0 tools.

The aim of the BIS students to use lecture recordings is to prepare for examinations and the replacement of present lectures by lecture recordings where they have greater flexibility and they can concentrate more on their lectures.

Students' attitudes toward lecture recordings were positive overall and students who are using technology more widely want to have those recordings in their own computers and mobile end devices. And, one half of students stated that they would agree to give a part of their study fees for the continuity of lecture recordings.

This was a rather technology-oriented study than design-oriented one. However, it demonstrated the students' perspectives on lecture recordings in which the lecturers that are interviewed in the framework of this dissertation were curious about.

7.4.3. Second Life as an eLearning Scenario in Different Sciences

According to the study of Müller & Leidl (2007) where they conducted a qualitative research to find out how Second Life as a virtual learning space is used by different purposes in terms of pedagogical principles is progressed through Pedagogy department at TU Darmstadt. They did this research study in a framework of a seminar called "Exploration of Virtual Learning Space Second Life" in a blended learning atmosphere. It was a research seminar which aims to find out the pedagogical principles while teaching and learning with Second Life. The students used Second Life as the main eLearning platform and also, they used tools such as "Team speak" to communicate with each other and conduct the interviews with other instructors who are using Second Life in their teaching. They used instant messaging and email to foster communication within the research teams.

The results of the study of Müller&Leidl (2007) demonstrated that different sciences try to implement Second Life somehow in their teaching and learning processes such as:

University of Arts, Berlin used Second Life in a Bachelor course "eBusiness" and in a Master course "Leadership in Digital Communication". The students form small groups and build their own personal learning environments with the help of tools such as text, pictures and video sequences.

TU Wien supported the virtual campus project of two students and later on Tourism Information Systems Department in TU Wien used Second Life for the purpose of job training where the students worked in groups in a self-learn environment with an embedded wiki.

Rheinischen Fachhohschule Köln used eLearning in the course of Media Economy which is lead by Bernd Celt. They constructed a blended learning environment including presence training with some additional events and teaching offerings. Team Speak tool is used to communicate between participants. The virtual learning space was constructed as an auditorium. 12 individuals has prepared and provided tutorials about how to use the virtual learning space in a self-learn fashion. Presentations are available to run. Indeed, they permit students to use "Sandbox" to create objects within the virtual learning space Second Life. So, they used Second Life as some kind of an experimental space. A wiki is used to enhance communication and collaboration. Additionally, the lecturer opened his own personal blog to be used by students where they can publish blog posts. For some writing tasks, additional web-based applications are integrated. In sum, Second Life in RFH Köln is used for real-time interaction.

Volkshochschule Goslar provided some of its courses such as "Antiques" in which philosophical discussions are at the core of the course and some foreign languages courses with the help of Second Life.

Institution for Knowledge Media used Second Life in a psychological research study to understand learning and the transfer of knowledge with digital media. Afterwards, computer sciences, linguistics, and communication studies started to use Second Life in their teaching.

University of Düsseldorf implemented Second Life in a course called "Once and Future World-the Middle Ages" in winter semester 2007/8. They used Second Life to make students understand and become more familiar about the middle ages. "Medieval English Literature and Historical Linguistics courses from the University of Heinrich-Heine also collaborated with University of Düsseldorf in the framework of Middle Ages course. Both universities allowed guest participants in their courses on Second Life environment. The aims of the course was to built and construct a middle Ages town with objects, buildings to give information about the old and middle times of English. Blended learning was used as a main scenario. Tutoring, projects, and group work was issued in presence training. Collaboration and building of personal learning environments was issues in Second Life. Additionally, online support was given by tutors throughout Second Life.

Müller&Leidl (2007) stated that SecondLife has somehow replaced and improved the so called “Social Presence” challenge of eLearning. However, they indicated that technology itself is a challenge in using environments such as Second Life, because of the special hardware requirements, technical problems with software’s own features, graphical requirements, and routine updates. Indeed, they strongly point out that the usability of Second Life is complex.

7.4.4. eLearning at the Department of Social and Cultural Anthropology at the University of Vienna

The University of Vienna has considered to step in eLearning with a strategic eLearning project at the Department of Social and Cultural Anthropology with the help of blended learning strategies for methodology education in 2007 (Mader et al., 2008). They introduced Blackboard learning management system; however, they found out that humanities/social sciences’ instructors and students were somehow resistant in applying tools, methods, and technologies. So, they decided to conduct a study on humanities/social sciences, in particular, social and cultural anthropology to evaluate their attitudes.

They introduced blended learning scenarios with the help of tools such as Blackboard, the MindManager, HTML, glossaries, Yahoo! Pipes for mash-ups, RSS 2.0, and some additional add-ons in Blackboard learning management system in three methodology courses such as “Scientific Writing” “Quantitative Research”, and “Qualitative Research”.

For these courses several blended learning scenarios were realized using the LMS WebCT Vista/Blackboard Vista, and hypermedia teaching, the modules are produced as: “Scientific Writing”, “Quantitative Research”, and a prototype of “Qualitative Research” by a team of authors who also teach these subject-matters. The implementation of these eLearning elements within the blended learning scenarios was evaluated by students in respect to the structure and functional use, utility, and comprehensibility as well as the personal usage of different tools (Mader, et al., 2008).

Within the framework of quantitative and qualitative research modules, the units involved theoretical issues, discussions, and study of relevant texts in which students get prepared for creating, conducting, and analyzing a survey. Within the scope of scientific writing module, students practice to create a comprehensive

scientific and journalistic text which focuses on the formal and stylistic skills of scientific writing.

According to the results, students that participate in the modules where teachers actively integrated the learning units into their teaching; found the explanations and the structure simple, comprehensible, logical, and easy to understand. Those teachers were either authors of this learning material, therefore they have developed a perfect understanding of this hypertext, or they gained a deeper understanding of the online learning content through their participation in the project. The authors claimed that the teacher is one of the crucial factors for the students' acceptance of eLearning tools and blended learning scenarios. Moreover, the authors found out that experienced students are more likely to comprehend the importance of communication and collaboration in eLearning environments than the novice students (cf. Mader et al., 2008).

In conclusion, the authors indicate that the processes of identifying strategies, implementing tools and methods, and evaluating scenarios and models for eLearning need to be planned and conducted openly in humanities/social sciences by integrating indeed the critical voices. Solely this way, eLearning will also find its place in technology critical environments such as humanities/social science education (cf. Mader et al., 2008).

7.4.5. eLearning as Supportive Learning Environment at Fachhochschule Köln

In 2011, Dr. Lau conducted a study to measure the effectiveness of using self-study environments as a supportive learning environment for students of engineering sciences. The low level of students success rates in Mathematics classes where all engineering students should attend in their first semester to improve their mathematical skills was the major reason to integrate eLearning.

Dr. Lau stated that all students are coming from different kind of high schools and their mathematical knowledge levels are diverse. To homogenize students knowledge levels, they decided to create tests where students can exercise what they have learned in classes and self-assess their performances immediately. Fachhochschule Köln uses Ilias learning management system in which various kinds of tools are integrated alike other learning management systems. However, they decided to use a self-test tool according to the current problem they have.

The main aim to use self-test tool is to see the actual knowledge status of the first-year engineering students to overcome the stated problem. There were 70% multiple choice questions. In fact, fill in the blanks and listing questions are applied, additionally. There are various combinations of questions and each test consists of 10 questions. In total 7210 questions are answered by 137 students where each student has solved the questions at least 5 times. According to the outcomes, Dr. Lau stated that lecturers have the possibility to evaluate students' performances with the help of statistics data provided by the learning platform Ilias. In contrast, students were able to enhance their knowledge status by gathering immediate feedback about the questions they solved. In sum, students evaluated the usability and profitability of the tests very positive and the success rates of students increased obviously (cf. Lau, 2011).

7.4.6. Virtual and Remote Laboratories in Engineering sciences at TU Berlin

In TU Berlin, Engineering sciences' instructors were considerably impressed of new media and educational technologies and they tried to integrate virtual and remote laboratories in engineering education, especially in physics, magnetic, and thermodynamics. The aim was to visualize theories and models that are difficult to understand by using only text format. VideoEasel as virtual laboratory and Labview as remote laboratory where the real experiments are conducted were developed and installed.

The instructors stated that they used virtual laboratory VideoEasel, to enhance cooperative work between students, or students and their teachers, and added that VideoEasel is able to support distributed measurement processes on the same experimental setup, including remote access from outside the university. Instead, remote experiments are included to complement the virtual laboratory. A Remote Experiment consists of two vital parts, namely the experiment itself and a computer interface allowing control over the experiment via the internet. (Jeschke et al., 2007).

When the virtual and remote laboratories are compared to traditional ways of experimenting, instructors stated that the executed experiments and the outcome models did not match one another; there were some deviations. However, instructors stated that derivations are observed in the small fields and they added

that this is likely because their entropy measurement is only an approximation and does not take long-range interactions into consideration. Accordingly, they acknowledged that by the way students learn that models are by their very nature incomplete, and theories make approximations and can only predict reality within a certain error (Jeschke et al., 2007).

The authors of the study concluded that the accomplishment of experiments in eLearning scenarios touches any aspects ranging from the actual quantification of a physical measurement, over operating experience with real experimental setups, to the examination of the corresponding theoretical model of the learning process in the academic education of engineering sciences. The combination of real experiments with virtual laboratories creates many benefits, of which the most important is that allowing students to study a physical phenomenon throughout experiment, model and theory, especially in understanding an outstanding matter, which is vital for the learning process in engineering sciences. Indeed, they mentioned that there is a need to extend the experimental possibilities in both the remote as well the virtual laboratories (Jeschke et al., 2007).

7.4.7. Summary

Engineering sciences conducted their studies and integrated eLearning in their subject-matter contexts from a technological perspective and humanities/social sciences mostly conducted studies from an instructional perspective. If the works of both sciences are compared with one another, humanities/social sciences' subject-matter contexts are resistant and skeptical toward practicing eLearning and they to create a meaning about why to use eLearning in their teaching and learning. In contrast, engineering sciences' subject-matter contexts try out tools of eLearning that they often self-develop according to their needs and wants. Moreover, they improve the tools and products via testing them experimentally. Humanities/social sciences' subject-matter contexts usually apply collaborative and communicative web-based tools. The use of Web 2.0 tools is limited in both humanities/social sciences' and engineering sciences' subject-matter contexts; however, humanities/social sciences' subject-matter contexts have more tendencies to use Web 2.0 tools.